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SEMINAR ON ELEMENTARY AND SECONDARY SCHOOL EDUCATION IN THE VISUAL ARTS.

BY- CONANT, HOWARD
NEW YORK UNIV.

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A SEMINAR IN THE VISUAL ARTS WAS HELD AT NEW YORK UNIVERSITY TO DEFINE PROBLEM AREAS IN AND TO DEVELOP RECOMMENDATIONS FOR RESEARCH PROPOSALS FOR ELEMENTARY AND SECONDARY SCHOOL EDUCATION. OVER 40 PERSONS FROM A VARIETY OF PROFESSIONAL DISCIPLINES, PURSUITS, AND ORGANIZATIONS PARTICIPATED, ALLOWING HALF THEIR TIME TO SMALL GROUP DISCUSSION MEETINGS AND THE REMAINDER TO PLENARY SESSIONS. MOST IMPORTANT AMONG THE RECOMMENDATIONS DEVELOPED IN THE SEMINAR WERE (1) THE ESTABLISHMENT OF A STEPPED-UP AND IMPROVED SYSTEM OF ART TEACHER RECRUITMENT, (2) THE DEVELOPMENT OF A VAST FILMMAKING AND FILM DISTRIBUTING PROGRAM, (3) THE DEVELOPMENT OF IMPROVED VISUAL ARTS INSTRUCTIONAL MATERIALS FOR BOTH INDIVIDUAL AND GROUP USE, (4) THE PUBLICATION OF AUTHORITATIVE, PERSUASIVE STATEMENTS ON ALL ASPECTS AND AT ALL LEVELS OF ART EDUCATION, (5) THE EMPLOYMENT OF 1 ART TEACHER FOR EVERY 500 STUDENTS, INCLUDING THE OFTEN NEGLECTED PRIMARY GRADE LEVELS, (6) THE PROVISION OF 1 ART ROOM FOR EVERY 500 STUDENTS, INCLUDING RECORDING AND PROJECTION FACILITIES, FOR INDEPENDENT AND CLASS WORK, (7) THE BROADENING OF ART EDUCATION CURRICULUMS TO INCREASE TEACHER COMPETENCE IN SUBJECTS OTHER THAN ART, (8) THE BROADENING OF THE SCOPE OF ART TEACHING TO INCLUDE URBAN DESIGN, ARCHITECTURE, PHOTOGRAPHY, AND OTHER AREAS, AS WELL AS THE MORE FAMILIAR FIELDS OF PAINTING AND SCULPTURE, (9) AN EMPHASIS ON THE DEVELOPMENT OF VISUAL PERCEPTION AMONG ALL PERSONS, (10) AN EMPHASIS ON THE STUDY OF HISTORIC AND CONTEMPORARY ART WORKS, (11) THE INSTITUTION OF WIDESPREAD CHANGES AND FAR-REACHING IMPROVEMENTS IN ALL PHASES OF ART TEACHER EDUCATION, AND (12) THE DEVELOPMENT OF A GRADUATED ART EDUCATION PROGRAM EXTENDING FROM NURSERY SCHOOL THROUGH GRADUATE STUDY AND ADULT EDUCATION IN WHICH EDUCATORS AND LEADERS IN A NUMBER OF OTHER DISCIPLINES COULD SERVE. (JH)

ED002975

SEMINAR ON ELEMENTARY AND SECONDARY SCHOOL EDUCATION IN THE VISUAL ARTS

COOPERATIVE RESEARCH PROJECT NO. V-003

HOWARD CONANT
NEW YORK UNIVERSITY

Seminar on Elementary and Secondary School Education in the Visual Arts

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
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COOPERATIVE RESEARCH PROJECT NO. V-003

HOWARD CONANT

NEW YORK UNIVERSITY

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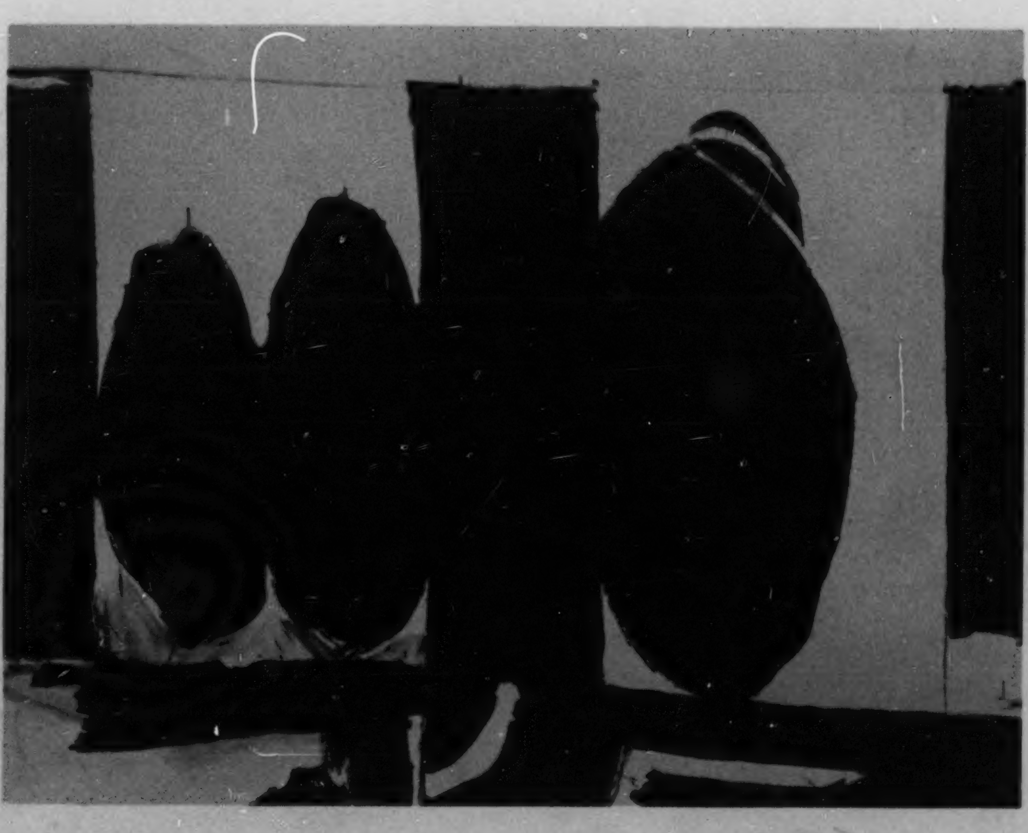

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New York University, New York, N.Y., April, 1965.

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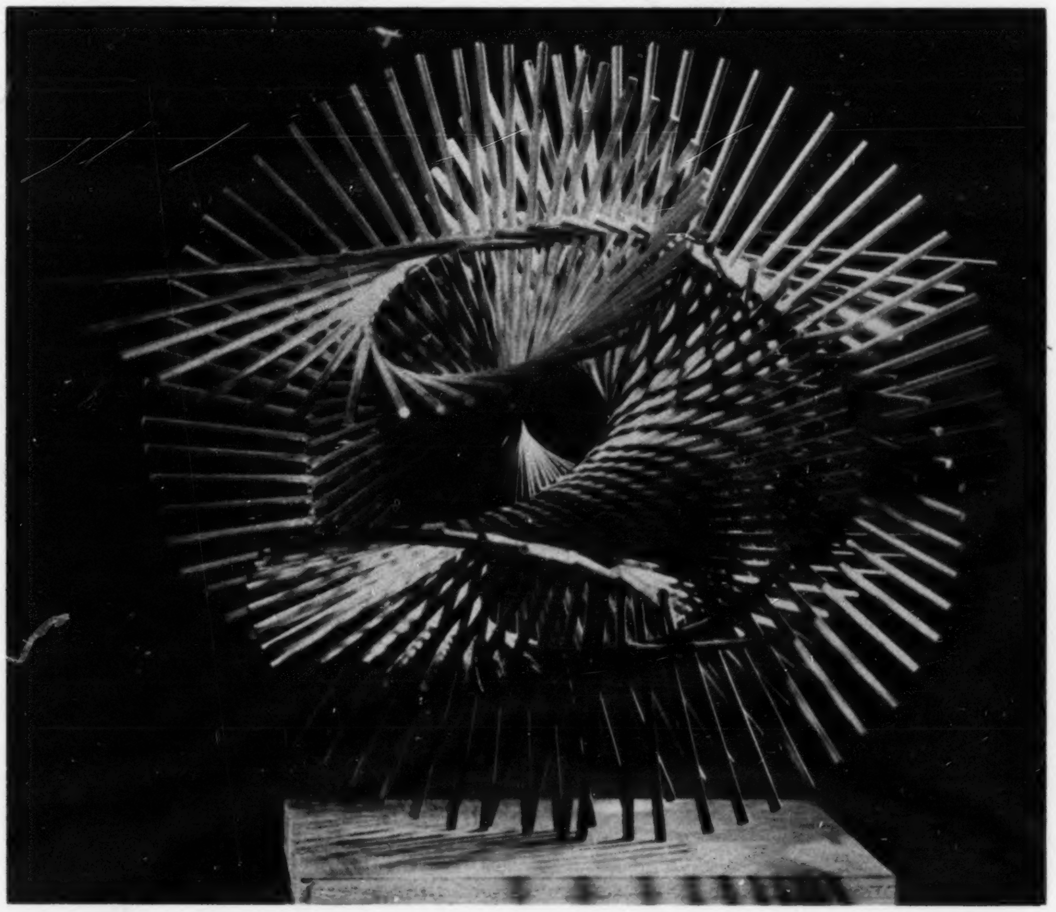

FIG. 1.—*Transformation No. 3*, 1959, brass, 19" wide, by Stephanie Scuris. New York University Art Collection.

Acknowledgments

Credit for whatever values may be ascribed to this report should primarily be given to the individual seminar members and observers whose strongly felt and thoughtfully expressed views are contained herein. As seminar director and editor of this report, I have conscientiously attempted to express the consensus, as well as certain differences, of opinion of these persons. On every possible occasion, I have used direct quotations from tape recordings to make absolutely clear the positions taken by various participants.

Particular credit, it seems to me, is deserved by Victor D'Amico, who served as chairman of the Steering Committee; Robert Iglehart and Frederick Logan, who served as Steering Committee members and read major papers at the seminar; Kathryn Bloom, Harlan Hoffa, Robert Osborn, and Joseph Turner, who played important roles in pre-seminar planning; Bartlett Hayes, Olive Riley, and George Segal, who served with distinction as chairmen of discussion groups; and Sister Mary Corita, Rita DeLisi, and Zelda Dana Wirtschafter, who served as recorders.

To the New York University and Federal Government personnel who aided us in preparing for, conducting, and reporting upon the Art Education Seminar: our sincere thanks.

Howard Conant

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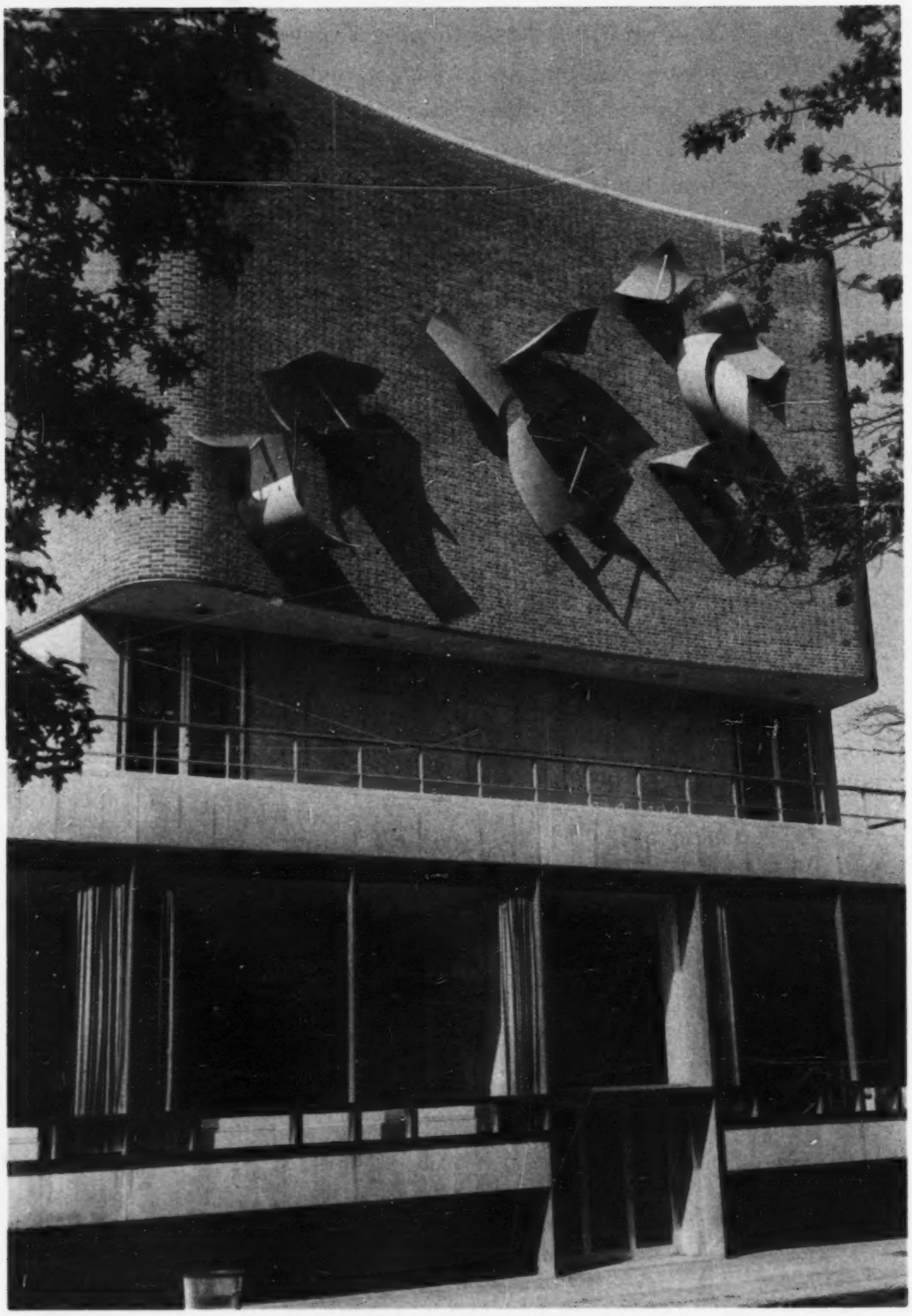

Fig. 2.—New York University's Loeb Student Center, where the Seminar was held, designed by Max Abramovitz. Facade sculpture by Reuben Nakian.

Chapter I

EVOLUTION AND STRUCTURE OF THE SEMINAR

EVOLUTION

Dissatisfaction with the generally poor quality and decidedly inadequate scope of art education in elementary and secondary schools has increased markedly in recent years. Persons in a wide variety of academic disciplines and professional pursuits have joined a cadre of more enlightened art educational leaders in demanding a searching reappraisal of existing practices in the teaching of art. Jointly, these people have pleaded for curriculum reform and the development of programs which will, with speed and effectiveness, bring to elementary and secondary school pupils the opportunities for creative expression and cultural understanding in the arts which they not only fully deserve but urgently need; opportunities which, with rare exceptions and for reasons which will be stated, they have been denied.

The Seminar on Elementary and Secondary School Education in the Visual Arts, which met at New York University from October 8th through 11th, 1964, was made possible by a grant from the United States Office of Education. It was probably the first meeting of its type in art educational history. Most of the 42 invited participants were *not* art educators but were, instead, persons distinguished in other disciplines who had, on one or more occasions, expressed strong interest in examining prevailing conditions in the teaching of art and in offering suggestions on possible means of improvement. Among the disciplines, professional pursuits, and organizations represented* were: the American Council of Learned Societies, architecture, art criticism, art history, art museum administration, college administration, the College Art Association, elementary school classroom teaching, filmmaking, journalism, mathematics, music, painting, physical science, sculpture, the Office of Science and Technology, the Panel on Educational Research and Development, the United Nations Educational Scientific and Cultural Organization, and urban design. Among the smaller number of art educators were elementary and secondary school and college teachers and representatives of the National Art Education Association and the National Committee on Art Education.

The nucleus of persons who conceived, planned, and conducted the seminar strongly believed the time had come for art educators to stop listening mainly to each other and to begin listening to leaders in other disciplines

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*Because of the highly unique nature of the seminar, these participants spoke as individuals rather than as official spokesmen for their institutions or organizations.

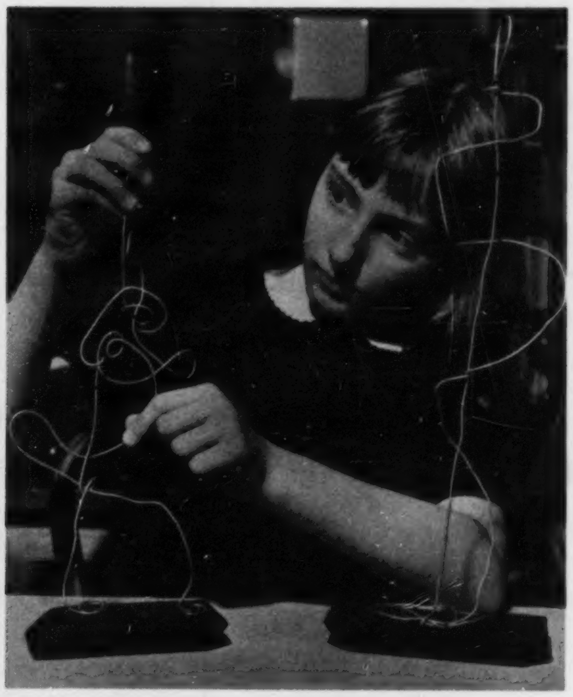

Fig. 4.—Elementary school child creating aluminum wire sculpture. Courtesy Chicago Public Schools.

Fig. 3.—Professor Henry Hope, of Indiana University, addresses seminar discussion group.

who have, it is now apparent, been anxiously waiting for an opportunity to "speak their piece." Speak they did! Recorded they were! And now, quoted or otherwise reported, their very outspoken, highly insightful, sometimes provocative, often extremely useful, and frequently action-demanding views are herewith presented for the careful consideration of persons in all walks of life who share their deep and often urgent concern for sharply upgrading the quality of art education in our schools. It should be carefully noted, however, that the comments and recommendations included in this report came out of a comparatively short, four-day meeting, and that the New York University Art Education Seminar was an exploratory venture aimed at paving the way for a series of other seminars, workshops, institutes, and curriculum projects, some of which are recommended in the chapters which follow. Some of the opinions quoted in this report were expressed spontaneously; others were carefully structured in advance of the meeting; but it seemed apparent that all statements represented very strong convictions long held by persons who made them, many of which received majority endorsement, but some of which were opposed, questioned, or contested. As one participant said, "It is not likely that you would participate in and make recommendations to a federally-sponsored seminar on education on a casual or haphazard basis."

The tone and content of the preceding paragraphs, as well as much of the materials which follows, should by no means lead the reader to believe that participants in the New York University Art Education Seminar failed to make adequate note of certain presently-existing art education programs which should, in part or whole, be exempted from criticism. Descriptions of some of these were presented during the seminar, and are summarized in the body of the report. Indeed, one of the main recommendations of the seminar calls for increasing the number of such programs by publishing descriptions of them, by televising, filming, photographing, and tape-recording them, and by using their teachers as leaders of in-service workshops and as instructors of college art education classes. As one seminar member (an artist who is also a school board member) said, after hearing a description of what clearly appeared to be an unusually successful program, "I just want to know how we can find and train thousands of teachers like you!"

A number of participants expressed a strong desire to avoid the sweeping criticism based on inadequate evidence and often meaningless generalizations which they felt to be characteristic of many previously-published recommendations for educational reform.

The New York University Seminar on Elementary and Secondary School Education in the Visual Arts came into being as a result of the combined interests, concerns, and efforts of persons representing the President's Office of Science and Technology, the United States Office of Education, the interagency Panel on Educational Research and Development, and the art education profession. They felt that the means by which educational reform was planned for and is being successfully implemented in the fields of mathematics and science, wherein distinguished mathematicians and scientists together with professional leaders in other disciplines worked with carefully selected elementary and secondary school and college teachers of these subjects, might well apply to a study of means by which much-needed improvements in art education might be brought about. In preliminary planning group meetings, they carefully selected 45 persons distinguished in one or more of the aforementioned categories, all of whom were known to possess genuine concern for the quality of art education in elementary and secondary schools, and invited them to participate in the seminar. All of those invited, except three persons whose previous commitments made their participation impossible, accepted not only promptly and enthusiastically (and on very short notice), but with a sense of compelling professional responsibility. Prior to the seminar, participants were sent a tentative plan of operations, including a suggested bibliography (see Appendix A), and copies of recent art education literature.* Additional literature was issued at the opening of the seminar.**

FIG. 5.—Bartlett Hayes of Phillips Academy, Andover, Massacusetts, introducing his slide/tape presentation on visual perception.

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*Howard Conant, *Art Education*, Center for Applied Research in Education, Washington, D.C., 1964.

Howard Conant, mimeographed lectures: "The Pursuit of Excellence," May 2, 1963; "The Visual and Plastic Arts in Higher Education," November 20, 1958; "The Professional Art School and Modern Society," May 16, 1960.

Victor D'Amico, *Experiments in Creative Art Teaching*, The Museum of Modern Art, New York, N.Y., 1960.

Victor D'Amico, mimeographed lecture: "Does Creative Education Have a Future?", August 27, 1963.

**August Heckscher, *The Arts and the National Government*, Report to the President, May 28, 1963.

John I. Goodlad, *School Curriculum Reform in the United States*, The Fund for the Advancement of Education, March, 1964.

Goals for School Mathematics, Educational Services' Incorporated 1963 (subsequently published by Houghton Mifflin Co.). John M. Mays, mimeographed lecture: "Changing Mathematics and Physics Curricula," June, 1963.

Science Course Improvement Projects, National Science Foundation, July, 1964.

STRUCTURE

The seminar was held from Thursday, October 8, through Sunday, October 11, 1964, at the Loeb Student Center of New York University. It was structured in the following manner:

First Day (morning):	Plenary session: presentations by Professor Howard Conant, of New York University, on the mission of the seminar; Miss Kathryn Bloom and Dr. Harlan Hoffa, of the Arts and Humanities Branch of the United States Office of Education, on available statistical data pertaining to art education; Professor Robert Iglehart, of the University of Michigan, on the status of art education in elementary schools; Professsor Frederick Logan, of the University of Wisconsin, on the status of art education in secondary schools; and Professor Edward Mattil, of Pennsylvania State University, on the status of art teacher education programs in colleges, universities, and professional art schools.
	General discussion.
(afternoon):	Plenary session: presentations by Professor Angiola Churchill, of New York University, on the nature of the elementary school art program in New York's Ethical Culture School; Dr. Eugene Grigsby, of the Phoenix, Arizona public schools, on the nature of his secondary school art program; Professor Hale Woodruff, of New York University, on the nature of the art programs at New York University; and Professor Jerrold Zacharias, on innovations and reform in the teaching of science.
	General discussion.
(evening):	Short plenary session (general discussion) followed by meetings of discussion groups (12-15 people each) dealing with the teaching of art in elementary schools.

Second Day (morning):	Plenary session: illustrated presentations by Karl Lifhn, of the United Planning Organization; Bartlett Hayes, of the Phillips Academy; and Neil Mitchell, of Harvard University.
	Discussion afterward.
(afternoon):	Short plenary session (general discussion) followed by discussion group meetings dealing with art education in secondary schools.
(late afternoon):	Film presentation: "Mary's Day" by Sister Mary Corita, of Immaculate Heart College, Los Angeles, California.
(evening):	Guests of Mr. Roger Stevens, Special Consultant to the President on the Arts, at a pre-opening performance of "The Physicists," which he produced.
Third Day (morning):	Discussion group meetings dealing with art teacher education, followed by meeting of steering committee and discussion group leaders.
(late morning):	Plenary session: Brief, informal statements by Sister M. Jacqueline, Rita DeLisi, and Lionel Nowak.
(afternoon):	Discussion group meetings.
(late afternoon):	Plenary session: Interim reports by discussion group chairmen; demonstration of continuous-loop, cartridge insert, 8mm. movie projector; and lecture by R. Buckminster Fuller on the educational implications of structural theory.
(evening):	Cultural Arts Demonstration: Concert of Indian music, featuring Ravi Shankar.

Fourth Day (morning): Meeting of discussion groups to finalize recommendations for improvements in the teaching of art in elementary and secondary schools and in art teacher education programs.

(afternoon): Plenary session: reports of the discussion groups and suggestions for follow-up activities.

(Lunches and, on one occasion, dinner were provided in a private dining room adjacent to the seminar meeting rooms, permitting participants to become better acquainted and to continue their discussions on a more intimate basis.)

OBJECTIVES

Seminar participants gave consideration to the following objectives posed in question form by the planning group:

1. How can the recruitment, preparation, and performance of art teachers be improved?

2. What are some of the basic strengths and weaknesses in art education today at the elementary and secondary school levels?

3. How can prevailing art educational conditions be improved?

4. What is the role of the professional artist, architect, art historian, and city planner in art education?

5. How can giftedness in creative expression be recognized and developed?

6. How can such deterrents to creative growth as stereotyped teaching methods, indoctrinary devices, coloring books, and numbered painting kits be eliminated?

7. What are the strengths and weaknesses of the correlation of art with other subjects?

8. How can the education of art teachers be improved with regard to their own creative development, cultural background, and teaching skills?

9. What specific competencies and skills should every art teacher possess?

STATEMENTS OF PURPOSE AND SUGGESTED PROCEDURES

A number of participants, in addition to members of the planning and steering committees, were helpful in clarifying the purposes and procedures of the seminar. Lionel Nowak, who had participated in the Yale Music Seminar, and Jerrold Zacharias and Sister Jacqueline of the Panel on Educational Research and Development were especially useful in trying to cure participants of "report-itis," urging them to let ideas flow freely, and reminding them this was a short, exploratory meeting in which detailed recommendations and carefully spelled-out, majority-supported resolutions were not expected.

Harlan Hoffa:

The Office of Education's major purpose in granting the funds for this seminar was to initiate further research. I don't think it was our expectation that participants at this meeting could arrive at any earth-shattering conclusions. We looked upon it mainly as an exploratory venture and one which would provide the raw meat for further investigations, for further, perhaps more tightly-structured, kinds of undertakings in the investigation of how to teach art and the relationship of the art experience to other aspects of behavior. I don't think we had any expectation of getting a concise statement of "This is what's wrong, and this is what we should do about it." It's mainly an exploratory operation and I feel we should not be distressed if we don't come to any final conclusions.

Charles Dorn:

We who are art educators and many of our colleagues who are elementary school classroom teachers readily admit we have certain professional weaknesses. We want more enlightenment, help, and opportunity to develop. The beauty of this seminar is that you're saying to us "Look,

Fig. 6. —Child preparing to make potato print. Courtesy University Settlement, New York.

you can't just sit around and gripe about the way things are! You've got to get up and do something constructive to make these things change." I think this is great! This is the energizing influence we need. We've been asked, and I think we've got to answer. We need to find out exactly what needs to be done and find out how best to do these things in ways which will have significant and lasting effects. We will need to develop some sufficiently challenging, exciting, worthwhile and applicable ideas that may help us to break the educational lockstep which presently affects many art teachers.

Joseph Turner:

Simply asking for more hours of something called "art" and simply asking for a greater number of something called "better prepared teachers" is not enough. It is necessary to consider what goes into those hours and what goes into the preparation of those teachers. It is also necessary to examine the tough questions of what is the purpose of teaching the visual arts in elementary and secondary schools and what is the place of the visual arts in society.

Roger Stevens:

Improved programs of art education may be a self-evident good as far as we in the arts are concerned, but it isn't a self-evident good to people who are handling educational appropriations. Whether or not you want to say it, you've got to have a "why," you have to present some reasonable and compelling arguments which endorse the need for improved art education.

Lionel Nowak:

It should be assumed that a majority of those who teach art are doing the best that they are able to do. Among these persons, many must question present methods and even, though charily, attempt remedies. Authoritative statements which would support their critical estimates, and tempt them to further intensity in defining the directions and means for change, would be valuable. For example, I cannot help believing that most teachers try to inculcate the sense of doing something "in a manner said to be correct" because they think this is what the professional artist considers of prime importance. If they can be assured that this is not so (and here a close, though brief, contact with a first-rate artist would be the best experience), they might more eagerly search out new techniques and goals in working with their pupils. The arts, as other fields, have suffered too long from imposed, second hand expository teaching. More time has to be given to actual practice in art education, and less to talk about it. We need more depth in a few media than a smattering of many, less protection of the subject as it is traditionally defined and a greater challenge toward the unknown.

At the request of several participants who felt that some indication of the nature of the Yale Music Seminar would be useful in their own deliberations, Mr. Nowak stated:

> We took note of some things. First of all, the child is usually given an instrument which he is not invited to discover, made to use it by playing somebody else's music in a manner said to be correct. We said, all that is poor. Now, this somebody else's music is confined largely to that of the 18th and 19th century western world. We said, that's poor. A particularly energizing music of our time, jazz, is committed to a musical ghetto. We said, that's not good. Listening to recordings is done in a

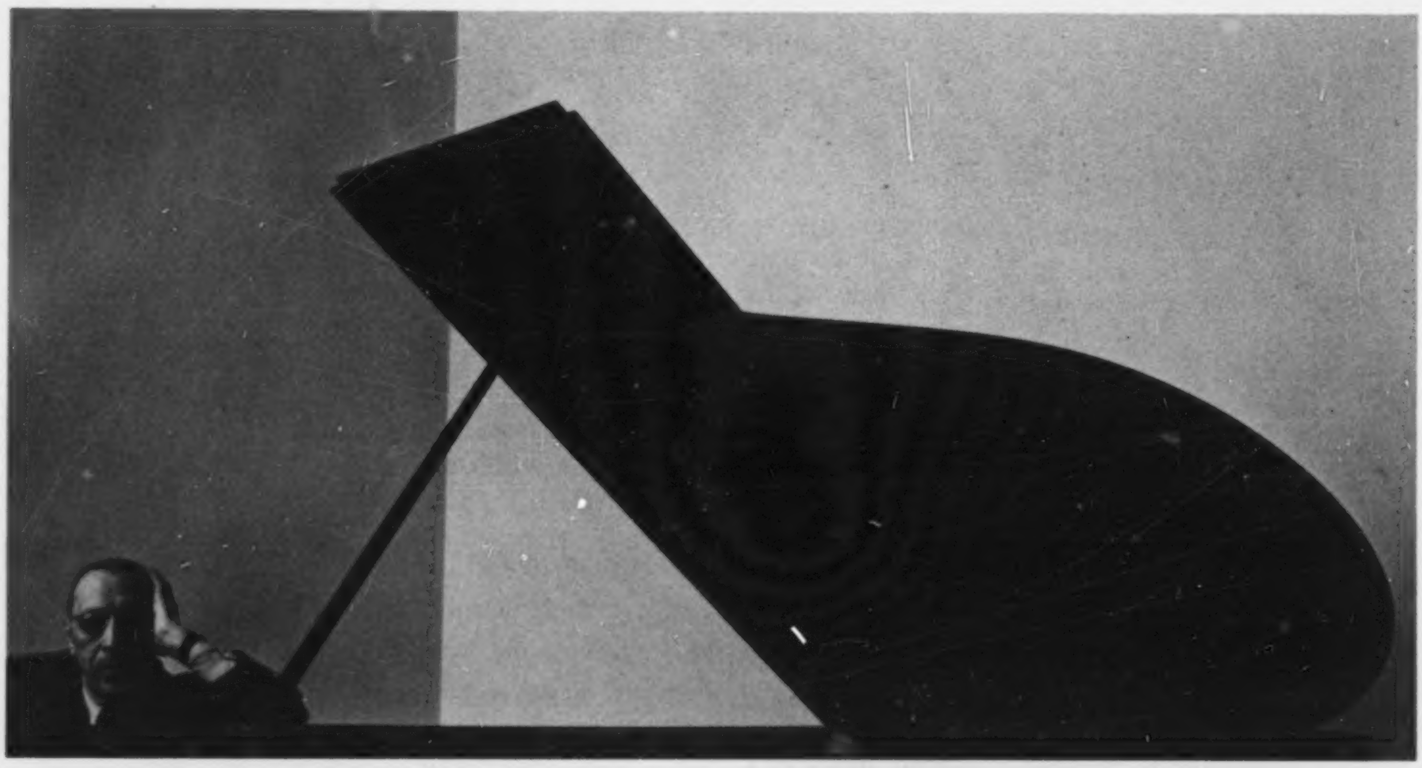

Fig. 7.—*Igor Stravinsky*, by Arnold Newman. Courtesy of the photographer. © Arnold Newman.

contrived and pre-digested way, and within severe limitations of style and culture. We said, that's poor. When essential musical concepts are considered this is done at a final level of abstraction and within the terminology of a constricted style not compatible within the experience level of the person having to deal with it.

Then we also said that basically what is wrong is that the composer who stands at the center of his art is either neglected or is the subject of corny biographical comment or, worse, textbook interpretation. Now then, the problem becomes, how do you correct these matters?

We said, the first thing we have to make sure of is that the instrument, the sound-producing instrument, should be in part a matter of discovery. How it is used should be a problem of search on the part of the student and the manner of appropriate use should be a development of value judgment by the individual himself. Then we said, we can't limit our musical considerations to a particular century or time. Music from non-western cultures must be heard, music of different styles studied. And the work of living composers might well be at the center of attention. Then we had to say that abstracting must come only when the child is ready and that there is no way of scheduling that time in advance.

We suggested that a group of composers meet with selected high school teachers who indicated responsiveness to the musical situation of today; that these persons

> work together for five or six weeks composing music and performing it. Each participating teacher could then set up a similar workshop for his own staff, all of this finally resulting in a new kind of musical classroom, a new curriculum.
>
> To be sure, the precise result cannot be forecast, but a new and continuing cooperation between active composer, practising musician, and teacher will assure a more viable musical life than we now possess.

John Mays of the National Science Foundation issued copies of "Changing Mathematics and Physics Curricula" to all participants in which is explained an approach to educational reform he felt might in some ways be applicable to art education. Some pertinent quotations from the document follow:

> . . . these physicists found that the changes they wished to effect in high school physics were of such a fundamental nature that a completely fresh start was the only sensible strategy. A prime aim was to present physics as a system of inquiry rather than simply as a body of knowledge. To this end they lay great emphasis on having the student come to grips with a new phenomenon first in the laboratory rather than having him use the laboratory for verification of previously enunciated principles. Through the laboratory, the text and problems, and films the effort is to develop in the student, insofar as practicable, a viewpoint and mode of attack consistent with that of the professional physicist in his approach to physical problems. Thus for example he is led to explore new situations from various directions and is encouraged to develop the tools necessary for this sort of attack—e.g., facility in thinking in orders of magnitude so that different hypotheses can be tested quickly without the necessity for laborious calculation in each case. The gain here is, of course, not only in speed but in the lowering of the barriers to those intuitive leaps that are an essential part of the creative process. . . .
>
> *School Mathematics*
>
> Many people would designate the founding of the University of Illinois Committee on School Mathematics (UICSM) in 1951, with Max Beberman as chairman, as the beginning of the present cycle of educational reform. Beberman's approach was a radical departure from that prevalent in textbooks of the time. His aim was to explore how far

one could go in leading the high school student to "discover" mathematical principles by himself in the course of a sequence of carefully chosen exercises with numbers. Good teachers have always made some use of this Socratic method of teaching in which the student is asked questions rather than told things. However, it is doubtful that many, if any, had previously dared to proceed entirely on this basis. The persevering work of the project led to the conclusion that what was lost in speed in the beginning of such a sequence was more than compensated for in both breadth and depth of mathematical understanding over a longer period. This sort of instruction has proved to be accessible to all well-trained teachers. We shall not attempt to describe work done during this period by other innovators whose work together with that of the UICSM helped open the eyes of teachers and mathematicians to the possibilities of having students learn mathematical ideas. . . .

The major aim of the School of Mathematics Study Group (SMSG) has been to put the existing school mathematics curriculum on a sound mathematical basis. Textbooks for grades 3-12 have been completed and work on books for grades K-3 is well advanced. Though the topics are often ostensibly familiar when viewed from the standpoint of conventional skills—and studies have shown that SMSG students learn these skills at least as well as students of conventional courses—the development involves an early introduction and continuing development of the properties of number systems in terms that will not have to be unlearned but will rather form a basis for further work in mathematics. . . .

Successful experiments . . . in teaching considerably more sophisticated mathematics than customary to elementary school children has made it clear that the graduating high school student could have at his disposal a very substantially larger amount of mathematics than he does now. . . . In anticipation of a time not too far in the future when teacher training will have caught up with the new school courses, a group of some 25 outstanding mathematicians started in the summer of 1963 a fundamental consideration of what forms the mathematics curriculum in grades 1-12 might take if the only considerations were the structure of mathematics and the needs and (still largely unexplored) capabilities of students.* The present curricu-

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*The report of this work, *Goals for School Mathematics*, was given to each participant.

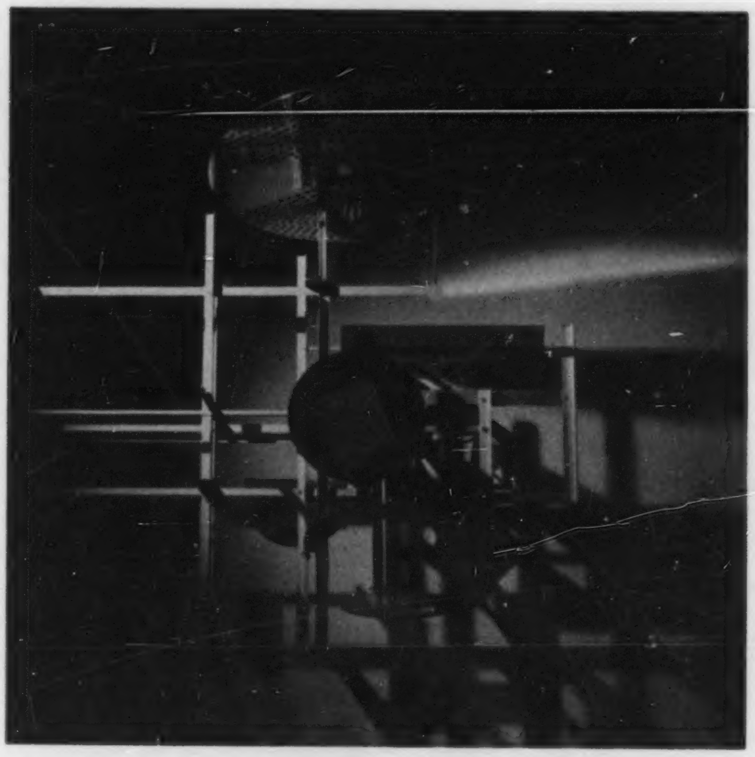


FIG. 8.—Metal construction, by Nicholas Schöffer. Courtesy Galerie Denise Rene. Photo by Yves Hervochon.

lum is full of mathematics that is likely to be essential for a very long time to come, but its order, emphasis, and pace, and what is left out of it owe more to historical accident than to logic. . . .

School Physics

In contrast with mathematics, where a number of projects are in progress, there has to date been only one large effort in physics—the Physical Science Study Committee. As has been mentioned above, the PSSC course concentrates on deep development of a few principal themes. The determination to have the students take as little as possible for granted is manifest from the start by a discussion of the way in which we come in contact with the physical world—through the senses—and how we make measurements of time and space. . . .

Outlook

It is clear that a revolution—that is to say a discontinuous change—is taking place in education in mathematics, science, and engineering in this country. There is heartening evidence that the reform is spreading to the humanities and the social sciences. No attempt will be made here to discuss the criticisms that have been leveled against the various new courses that have been developed and against the movement as a whole. The whole reform movement is a form of criticism of what has gone before,

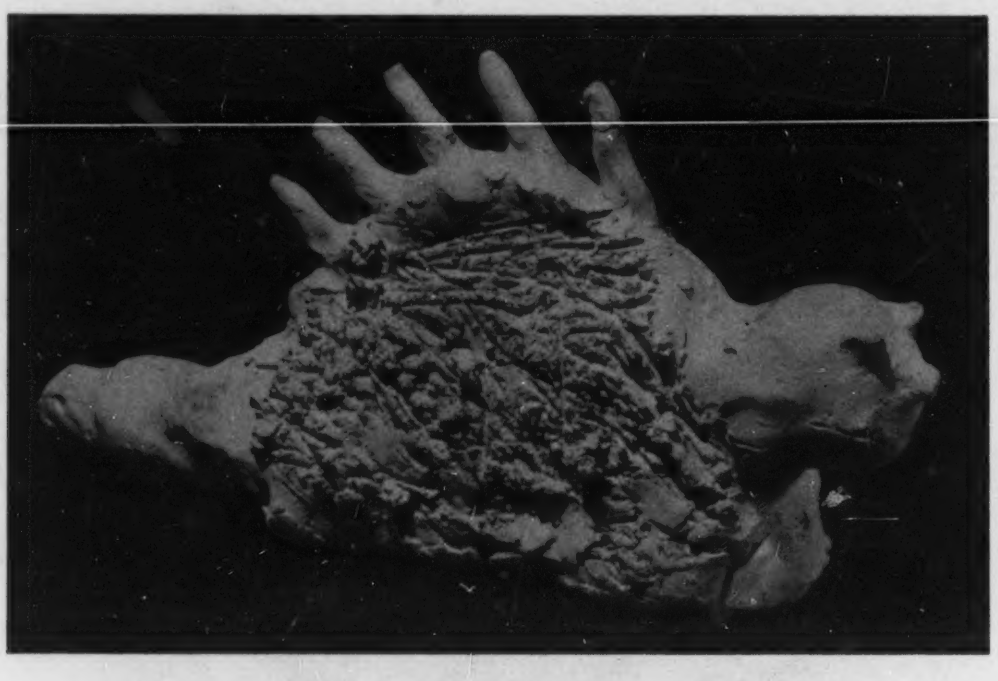


Fig. 9. —Prehistoric animal, clay, by 4th-grade boy. Courtesy Midtown Ethical Culture School, New York.

> and there are few who would wish the reformers to be made immune to criticism and a new orthodoxy thereby established. The most effective critics will be those persons of high competence who get to work and add to the number of alternatives available.

Sister M. Jacqueline urged seminar participants to create an "innovative" style in art teaching. "If art education is, as many of its leaders feel, one of the most creative professions, it must have the freedom to let things move." "Art education," she added, "must be freed from vested interest, must become imbued with the spirit of freedom of invention which now characterizes science education. If the vitality of the material you invent is so good that it explodes, some of us who are administrators, tacticians, and politicians will manage to make the necessary changes in teacher education and certification requirements and in existing curriculum patterns which are presently strait-jacketing art education."

Sister Jacqueline recommended a workshop or institute approach to art educational reform instead of one which is textbook-centered or otherwise verbally-oriented. More specifically, she cited two kinds of teaching described by Jerome Bruner: the expository, which proceeds from generalization to example to use, and is regarded as a valid mode of teaching in certain situations; and the inductive (which she felt art educators should stress) which proceeds from action to imagery to notation. "For example," she said, "some-

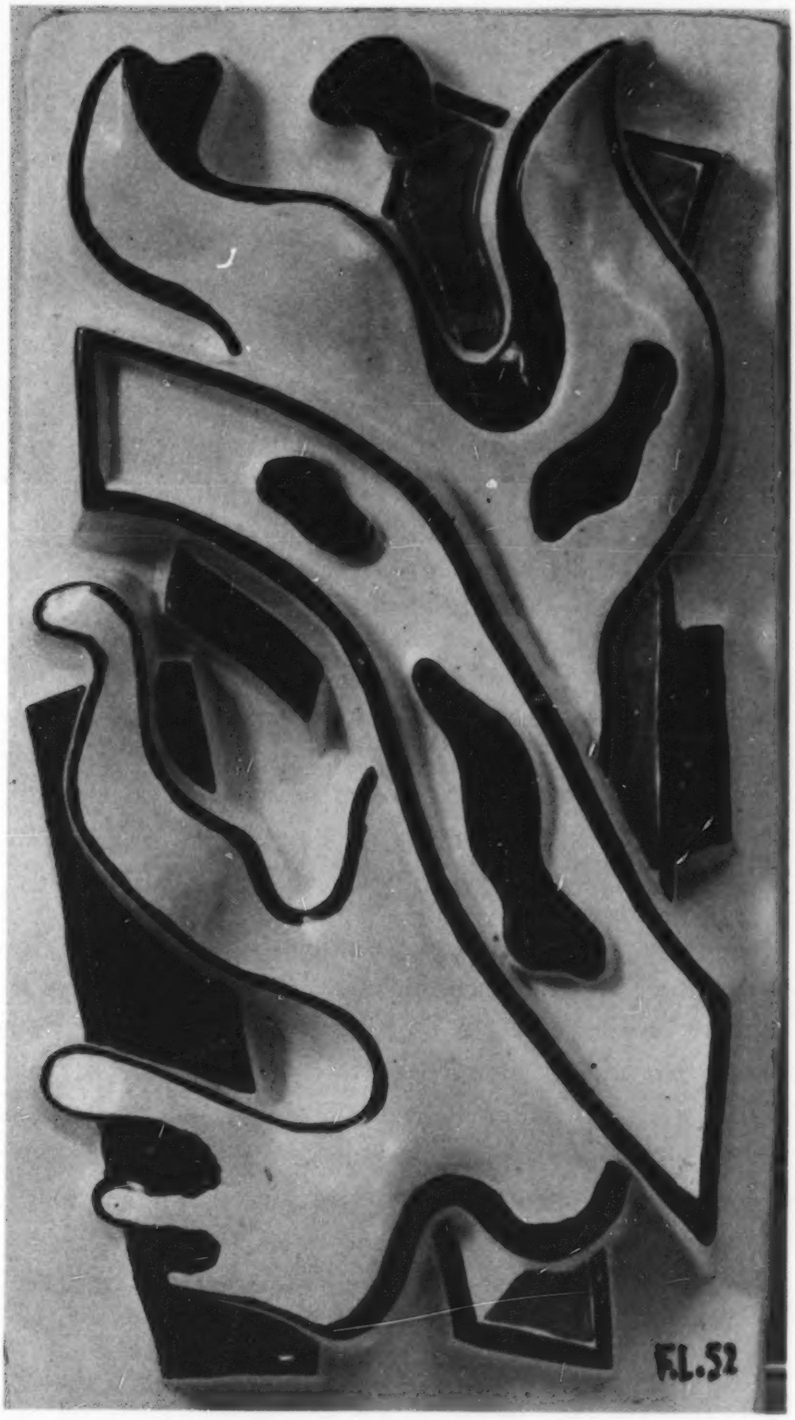


Fig. 10.—*La Flamme Jaune Sur Fond Rouge*, 1952, ceramic sculpture, 26 x 13 1/2 x 4 1/2", by Fernand Léger. New York University Art Collection.

one gets a hunch of what is needed, gets some brilliant people to invent some actions, tries to detect imagery from invented pieces that seem to go together, and from this imagery begins to build a curriculum."

Expressed attitudes toward learning theory and curriculum content varied considerably. At least four fairly distinguishable clusters of participants favored emphasis on the development of art education programs which stressed: (a) personal creative expression based upon carefully-structured, intellectually-conceived stimuli; (b) personal creative expression of a less formally-structured, more emotionally-based nature; (c) a fairly thorough study of our art heritage (including the present), particularly at the upper elementary, secondary school and college levels, with less time devoted to personal creative expression; and (d) a "balanced" combination of the foregoing emphases. The gist of the aforementioned preferences for art educational reform will be described in Chapter III.

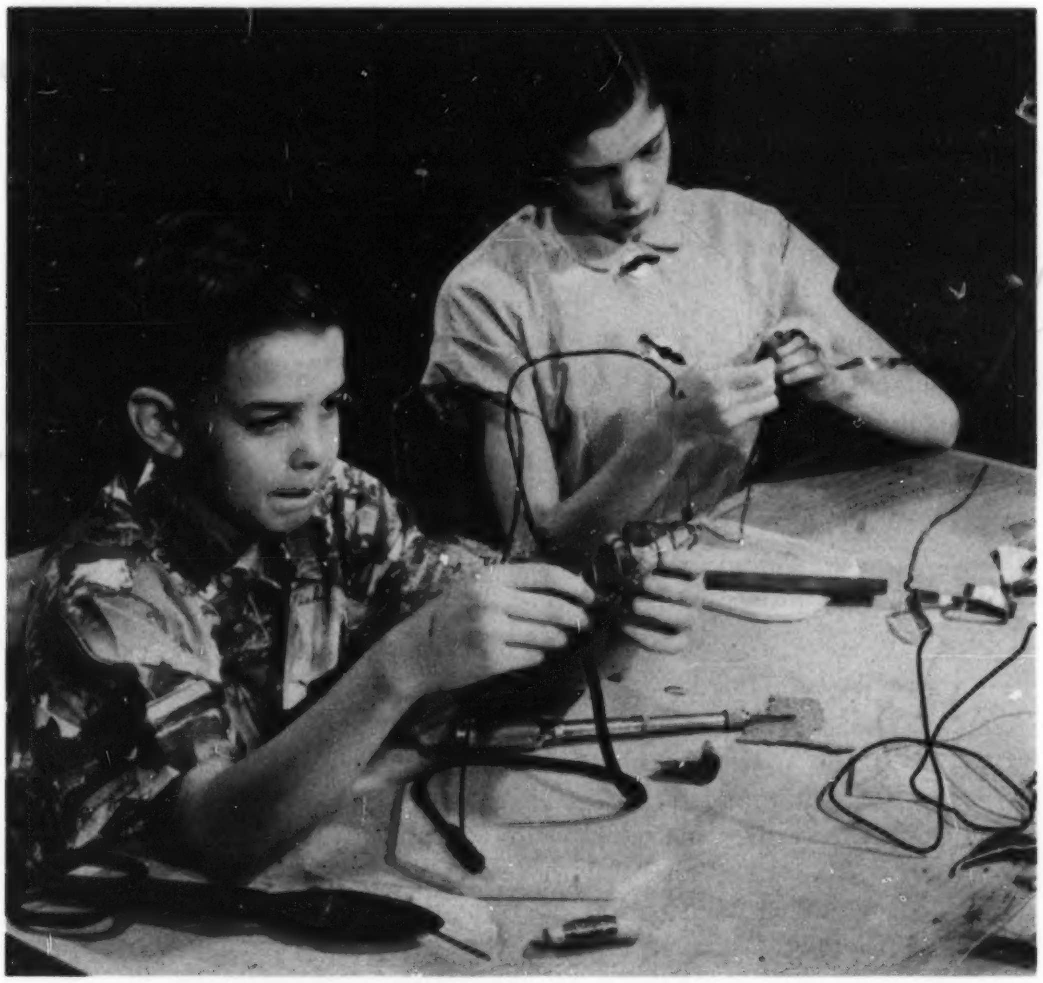
In stating their views on these and other matters pertaining to art education, participants found that they agreed upon, or came close to agreement upon, many issues; but in some instances they encountered what some believed to be "irreconcilable" differences of opinion. But even the latter were felt to be "illuminating." As George Segal said:

> It should be possible to draw certain fundamental principles from these sincere though varied expressions of belief. There is a richness of material in this diversity.

Lionel Nowak added:

> That the Seminar on Art Education was held at all is a fact of major importance. The sharing of information and attitude, method and purpose between artist, critic, historian, and educator, was a new and exciting step, essential to laying the groundwork for a revitalized and mutual concern about the practice and teaching of art. I mention this because one might too easily be discouraged by the hours spent in seemingly inconclusive talk and scattered argument, but a number of artists themselves remarked on how provocative the meetings were to them as individuals; such stimulation to persons who possess the imagination of those that participated cannot help but bear fruit even though the exact statement of fruition may not be immediately apparent.

The chapters which follow contain summaries of presentations and responses made at the plenary sessions, digests of discussion group meetings, and recommendations made at both plenary and discussion group sessions. All of the seminar sessions, including the discussion group meetings, were completely tape recorded; hence substantial verbatim quotations have been made possible.



Chapter II

THE CONDITION OF THE ARTS IN CONTEMPORARY SOCIETY AND EDUCATION

The opening sessions of the seminar were devoted to descriptions and analyses of the status of art education in elementary and secondary schools and in programs of art teacher education. Preceded by a summary of available statistics prepared by representatives of the U.S. Office of Education, three participants read papers in which prevailing art educational conditions and trends were described and analyzed; three other participants described ongoing and fairly typical art education programs at each of the levels considered in the seminar deliberations; and four other participants described on-going, experimental teaching projects which they had developed.

Without exception, participants in the New York University Art Education Seminar felt that the arts in contemporary society and education are not fulfilling, or, more accurately, are not being permitted to fulfill, their essential educational and cultural functions. Opinions on the condition of the arts ranged from optimism about the future to expressions of grave concern about the present. All participants, whether art educators, artists, or persons in other professional fields, agreed that the quality and scope of art education is in urgent need of sharp upgrading and much broader and more effective dissemination.

Prevailing Conditions in the Arts in Contemporary Society

The following address was delivered by R. Buckminster Fuller at a plenary session of the New York University Art Education Seminar:

> When very young in school I often felt that I could make jokes about the axioms from which we proceeded to formulate. Since we knew about the relatively vast spatial relationships of atoms and electrons, I thought that solids were impossible. I remember just before World War I, I began to say that I didn't think nature had separate departments of Physics, Chemistry, Biology, and Mathematics requiring meetings of department heads in order to decide how to make bubbles and roses! I had a suspicion that nature had just one department! The exploration capabilities of the scientists of my youth were meager compared to today—what the biologist was able to see with his very low-powered microscope looked very

different from what the chemists seemed to be dealing with—the chemist couldn't see what he was dealing with anyway! He just simply found that things associated or disassociated in unique manner and he had ways of measuring the rates and quantities. The physicist didn't know what he was looking at either—he seemed to feel that what he was dealing with was very different from what the biologist saw, so they felt they had to have different departments. They all made unique measurements. If the information was to be turned to practical account, some kind of coordination of the data, from the different departments' several methods of quantation, had to be developed. In matters of spatial arrangements the x-y-z coordinate system was used. Men seemed to think that breadth, heighth and width were all very logical.

Everybody in this room, as I speak today sixty years later, has lived through the days when man began to talk about other dimensions, such as time. He began thinking vaguely about time as a fourth dimension. Science advanced and changed rapidly without any adequate way for the non-scientist population to follow a great break between the sciences and the humanities. C. P. Snow became well-known around the world for his "two worlds"—the concept of the great dichotomy between the sciences and humanities. Snow attributed it to an antipathy at the beginning of the Industrial Revolution on the part of the literary men for the smells of the laboratories and the noisiness of the industry which ensued. Snow also attributed the initial dichotomy not only to carelessness on the part of the scientist towards the antipathy of the literary man, but also to the scientist's snob enjoyment of being mysteriously obscure. Snow said that the chasm widened until it could never be spanned again.

A year ago I talked with C. P. Snow in London; I said that I agreed with him about the existence of the chasm. I felt that anybody who had ever been a science writer would feel that way. In 1938 to 1940 I was the technical advisor to the editors of *Fortune* Magazine.

Fig. 11. — Buckminster Fuller addresses plenary session at New York University Art Education Seminar.

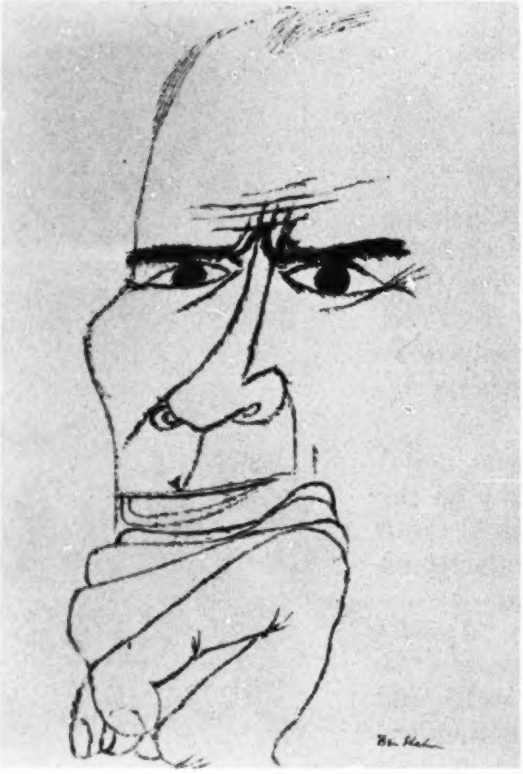


Fig. 12.—*Monroe Wheeler*, 1952, pen and ink, 20 1/8 x 13 5/8", by Ben Shahn. Collection, Museum of Modern Art, New York.

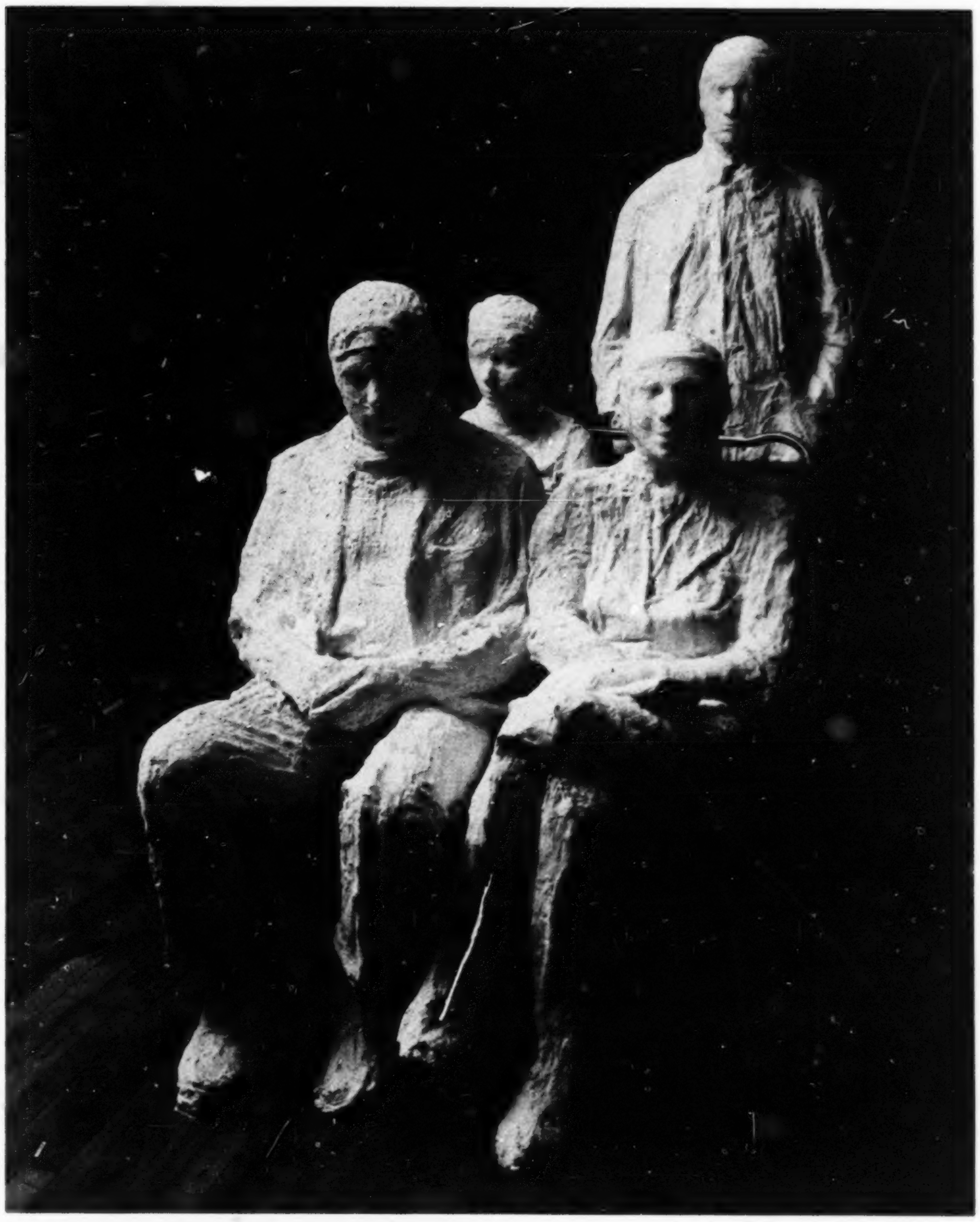


Fig. 13. —*Bus Rider*, 1963, plaster, leather, and metal, approximately 6 x 6 x 3', by George Segal. Courtesy Sidney Janis Gallery. Photo by Rudolph Burckhardt.

Whenever I attempted to report the scientific content of industrial enterprises to *Fortune* readers in words, the scientists within those industries said I would be unable to do so. They said that science is entirely mathematical and unless the *Fortune* readers read the mathematics, there would be no way to explain their scientific formulations. I felt them to be wrong. I battled hard to find ways of spanning this chasm. However, I didn't make my start to find the answer in 1938-40. I had been looking for it a long time. It went back beyond 1917 when I said I didn't think science and nature had different departments. It went back to kindergarten and to my earliest school-boy skepticism about the very axioms of geometry and arithmetic. I'd been exploring seriously since 1917, at first spasmodically—gradually more intensively—to discover whether we might not be able to find *the* coordinate system employed by nature. I felt that if and when we did find it, that it would be characterized by arithmetic and geometry which would be extremely simple. Chemistry showed us that nature was associating and disassociating in terms of simple, whole, rational numbers such as H2O, not as H pi O which would prevent nature from ever making anything because pi may never be resolved. Pi is irrational. There were no irrational numbers in chemical combinings of atoms and molecules.

What I was able to say to C. P. Snow was that I thought that the break was not due to antipathy on the part of the literary man, but due to a fundamental event that occurred in the world of science in the mid-nineteenth century. I explained that it occurred after Farraday discovered electrical behaviors, and the work of Maxwell and Hertz indicated the existence of invisible electromagnetic waves—waves going through the walls and through each other without interference with one another. In this new electromagnetic world, man found himself dealing with discrete apparatus such as a specific number of copper wire coils wound around a magnet. Each additional coil had a discretely measurable effect all stateable in neat algebraic equations. Ohm's law was typical of this development. The scientists, though dealing with invisible energy phenomena, were able to get beautifully neat answers to experimentally posed questions regarding various arrangements. They found themselves getting on very well without seeing what was going on. It was during some of these early experiments on energy behaviors that a fourth-power relationship was manifest. The equation contained a fourth power—X^4—. You can make a model of X^3, it is a cube, and you can make a model of X^2, (X to the second power: and call it a square, and a model of X^1 and call it a line; but you could not make a geometric model of X to the fourth power. The consequences of this unmodelable fourth power event are tied up with other events. At the same historical period literary men were trying to explain the new invisible electrical energy, which could do yesterday's tasks with new and miraculous ease, to their scholarly readers and the public in general. They began to use visually familiar analogies to explain the invisible behaviors. The concept of a current of water running through a pipe as analogous to electricity running through a wire was employed by the non-scientific writers. The scientists didn't like that at all, because electricity really did not behave as does water. Electricity "ran" uphill just as well as downhill (but did not really "run"). The scientists felt that analogies were misleading and they disliked them. When the experiments that showed a fourth power relationship occurred, the scientists said, "Well, up to this time we have felt that visual models were legitimate (though not always easy to formulate), but now, inasmuch as we can't make a fourth-power energy relationship model, the validity of the heretofore accepted generalized law of models is broken. From now on physically conceptual models are all suspect. We're going to work now entirely in the terms of abstract, "empty set," mathematical expressions.

Their invisible procedures thenceforth to this day have a counterpart in modern air transport and night fighter flying—which is conductable and is usually conducted entirely "on instruments." When you qualify for instrument flight you are able to fly in fog and night without seeing any terrain. You get on very well, and arrive where you want on instruments. Scientists "went onto instruments" about 1875—almost entirely. By the time I went to school at the turn of the century we were taught about instruments and equations and how to conduct experiments. We were told that the fourth dimension was just "ha-ha,"—you could never do anything about it. Frustrated by the withdrawal of models to describe, literary men invented the myth that the fourth dimension was *time* and therefore logically invisible—while the other three dimensions were as yet visible. Though incorrect, few scientists contradicted this explanation of *time;* for the scientists no longer thought of, or discussed, models. The cliche of "the fourth dimension is time" became a "knowing-one's" mystique.

So I told C. P. Snow of my own investigation of nature's coordinating system. In thinking about nature's coordinate system, I assumed it must embrace some kind of omni-rational geometry and arithmetic, because of chemical structuring rationality. I also found myself well-impressed with something we call vectors. Vectors had first been developed to important extent in electrical engineering (though Galileo used them tentatively and erroneously in developing his parallelogram of forces). According to Galileo we could make a vectorial pattern of a ship A of such and such a weight, going in such and such a direction at such and such a velocity. You multiplied the velocity times the weight and that gave you a

FIG. 14.—*Yellow Sky*, 1955, oil, by John Hultberg. Courtesy Martha Jackson Gallery, New York.

Vector—X. You then made a Vectorial line AC on your diagram that was X units long, that was shown going in the compass direction that the ship was going—let us say "due East." Ship A collides with another ship B at point C. Ship B weighed such and such an amount. You multiplied ship B's weight by its speed (velocity) and it gave you the length, Y, of a vector line BC. BC had a compass direction, too—let us say "Northeast," reading from B to C. Galileo then constructed a parallelogram ACBD with BD parallel to AC running west from B to D, then DA constructed parallel to BC, running northeast from D to A. Galileo then drew a vectorial line diagonally from D to C, the point of collision of ships A and B, and then Galileo extended the line DC outward of the parallelogram to E with CE = DC, and with the angle DCE = 180 , i.e., a "straight" line. Galileo called CE the "resultant of forces"—the vector of the combined forces X, Y. Galileo's "resultant of forces" was wrong because two colliding ships do not waltz gayly East-Northeast twelve miles together. Usually one of the ships goes "down"—into the sea—toward the center of Earth—which multidirection vector was not in Galileo's "plane" geometry scheme. Nevertheless I found his vectoral diagram exciting. It suggested a comprehensive geometry consisting entirely of vectors. A vectorial line was a very nice kind of a line because it had a discreet length—it didn't go on absurdly forever to the nowheres of two infinities—in both directions as potential extensibilities of lines. It didn't have the "time" to do so. It had a discrete amount of time, which time was a component factor of the vector's velocity. I wondered if nature might have a set of omni-directionally operative vectors that represented all of our experiences. It is *experiences* that we are dealing with in nature. Nature and universe are alike *the aggregate of all experience.* Couldn't I then find vectors that represented any and every unique experience? Vectors are like *spears.* I could "massage" any object into a spear shape, point and thrust-throw it in a discrete direction. I intuitively liked those directional vector "spears." I felt that they tended at least to embody all the energetic qualities of represented experiences. That thinking-feeling, however, was only an intuition and not an accomplished, *mathematically coordinate, generalized-experience system.* That intuition was followed by another pure intuition. I had liked Avagadro, just as soon as I had heard about him. Avagadro came into the world of chemistry at a time when chemists were excited about gases. The gases came into recognition as chemical elements through LaVoissier's explanation of Priestley's experiment with the isolation of fire. All the chemical elements up to the Priestly-LaVoissier event were metals—easy to recognize by their weights and colors. LaVoissier explained Priestley's experiment of fire under a Bell jar which had resulted in water vapor and ash whose combined weight was more that the weight of the item which had burned. LaVoissier said, "Well something that was in this space under the bell jar must have been there all the time which combined—with the visible item which burned—during the process of "burning" whatever that might be." He said that the "nothingness" under the jar ("something" men had called both "nothingness," or "air") must indeed be *something* which, though invisible, is physically real which combined to make the *water vapor* as well as the ashes.

I think La Voisser's intuitive conceptioning was possibly the most intellectually daring of all history. For a man to dare to think that the nothingness could be something fundamental, so fundamental so as to be identified as a chemical element, and not only that, but that the nothingness could be divided into a plurality of fundamental chemical elements was an enormous jump from the conditioned reflex concept of chemical elements—only as metals. And so, he called one of the invisibles oxygen and he had it combine with the carbohydrate item releasing the carbon and combining with the hydrogen to form the water vapor. I have oversimplified to get on with my story. Other humans were involved, etc. But it is close enough not to be misleading. From that point on scientists came swiftly to understand what fire was. It was fast oxidation. Therefore, they also knew what steam was for they now also knew what H_2O was, and how it combined. And they knew what iron rust was. It was *iron and oxygen*, as was iron ore. The metallurgical, chemical, thermodynamic bases of the invention of the steam engine were implicit in the chemical conceptioning of LaVoissier. As an indirect recognition of his general integrity, he was guillotined.

With the steam engine came the ability to drive ships without wind. With that came vast acceleration of world commerce and with it enormous amounts of wealth. Realizing for the first time in history that great wealth accrued to scientific discovery the rich masters of commerce—privately I call them the great pirates—put up large amounts of their wealth for further scientific discovery. This brought great scientific competition to determine who would run the world with the new steamships. In the scientific endeavor which ensued the next five chemical elements to be isolated were all gases found by Cavendish in England. Whoever understood energy and gases was apparently going to run the world. At this time the laws of thermo-dynamics evolved.

Avagadro entered the scientific area at the time of its preoccupation with gases. He began to study the total pattern of what men had found out about the gases—what characteristics they had found so far? He saw something which seemed significant and intuitively hypothesized a theoretical statement. He next devised experiments which could prove or disprove his theory. Experiments proved his hypothesis to be correct, to-wit: —"That all gases under identical conditions of heat and pressure always disclose the same number of molecules per given volume." Gases are individual elements; therefore, fundamentally different from one another. That individually fundamental elements, such, precisely because they were different, should show the same number of molecules in a given volume under identical energy conditions of both heat and pressure persuaded me that Avagadro had found at least a corner of the "Grand Central Station" of nature's fundamental coordinate system. Here were common conditions of chemistry, physics, arithmetic and geometry—a wedding of number and volume. I then said we know that Avagadro did what he did when gases were thought to be a special class of elements. Since that time we have learned that all the chemical elements including the metals can be liquified and incandescently plasmacized or gasified and in the other direction that gases can be liquified. Apparently we can run any of the elements back and forth through this transformation hierarchy depending on how much energy is present in the form of heat or pressure. So I intuited that it might be possible to generalize Avagadro by hypothesizing that: "All elements under identical conditions of energy may disclose the same number of something per given volume." So I said: If this becomes experimentally provable we may be getting somewhere in our search for nature's comprehensive coordinating system; if the answer lies in this direction the coordination will be expressible in neatly coordiate arithmetical, geometrical terms. There are and have been a great number of scientists looking for comprehensive coordinate systems—What has been lacking in all others than Avagadro's limited coordinate system of a plurality of individual elemental atomic gases—has been the failure to coordinate the *arithmetic and a geometry*. We have number values galore in respect to invisible energy relationships. We have hypothetical chemical constructs but no true geometry which is reliably conceptual. Avagadro's volume requires a geometric container.

So I said, all right; *if all the conditions of energy were the same*, what would such a condition look like in vectors? (And that brings me back to where I detoured from Galileo to Avagadro.) Well, it would mean that all vectors would have to be the same length. All of them would have to be running into each other at the same angles. So I said, can we make realistic, multi-dimensional, visible, tangible models of equi-length vectors all running into each other at the same angles? Such a vectorial system in local universe would be inherently finite. It would not imply additional vectors. It wouldn't have to go on forever, because vectors, unlike Greek "lines," don't have to go on forever.

I found I could make just such a model. It came out as what we call the tetrahedron-octahedron complex; some scientists call it the isotropic vector matrix. Aston, in 1929, made the discovery for the physicists of what he called "closest packing of spheres." The fruit dealer selling oranges and the cannoneers stacking equi-radii cannon balls learned about this closest packing of spheres earlier, but the scientists never noticed it. Two spheres may become tangent. We may then rest a third ball in the valley between them with the third ball tangent to both of the first two. The three balls, each one tangent to both of the others, now form an equi-angular triangle group with a valley at their center. A fourth ball may be rested in that triangular valley. The fourth one touches each of the other three, and vice-versa. The four closest packed spheres make a "closest packing array." This closest packing of spheres may go on triangulating in all directions. Because the spheres are all the same size, equi-length vectors may connect each and every adjacent sphere, *with the vectors running from the centers of the* spheres through the points of tangency to the adjacent spheres' centers. Remove the spheres and leave the vectors and you've got the tetrahedron-octahedron complex. The "isotropic vector matrix" is a structure that I discovered quite independently in kindergarten in 1899.

I related to Lord Snow how I experimented with this kind of geometry, and how I found that the vector-edged octahedron with the same length edge as the vector-edged tetrahedron had a volume of four times the tetrahedron.

A symmetrical cube has six faces, and a tetrhedron has six symmetrically-oriented edges. If you put a continuity of six diagonals in each of these six faces of the cube, a tetrahedron is formed. If you make a model of a cube with rubber joints, it collapses; it is completely unstable. If there's a tetrahedron secreted in the six diagonals of the cube's six faces, it will not fold up. A triangle is the only structurally stable polygon. A tetrahedron is the minimum, omni-triangulated, omni-structural system. A tetrahedron is the most fundamental of all structures. There are only three basically stable omni-triangulated, omni-symmetrical structures—the octahedron, the tetrahedron, and the icosahedron. Each is a basic system because each stably and symmetrically sub-divides the universe into two parts: all of the universe inside and all of the universe outside their systems. When I then began to explore the volume relationships of the simplest basic, symmetrical structures and gave the simplest—the tetrahedron—a volume value of one, I found that an octahedron had a volume of exactly four and a cube had a volume of exactly three. That's very interesting because if you try to account in cubes for nature's energy associabilities—as structural systems—you use up three times as much space as you do if you count space volumes in tetrahedron units. The physicists have found that nature is always most economical; therefore, she could not use cubes to quantitate her structurings. The cubes, you know, represented our x-y-z coordinate system.

If you use tetrahedra as your coordinating system, something very economical and fundamental happens. Just look at our cube here on the board. The cube's angles are each ninety degrees. When you want to make a bigger cube out of littler cubes—want to double the size of the cube—you then put eight little cubes together and get eight cubes symmetrically "closest stacked", the big cube, around one point. The edges of the big cube are each two units of cube-edge long. The cube edges are two. The face areas are each four. The volume of the two active-module edged cube is eight, eight being the third power of two.

When we deal in tetrahedra, we're dealing in 60 degree angle systems because in a regular tetrahedron, all the angles are 60 degrees; the're equilateral—or equiangular—triangles.

You remember that what I told Lord Snow was that when the scientists found an energy relationship in the fourth power value, they couldn't make a visual model of it because they couldn't find a fourth perpendicular to a cube which was not in a plane parallel to one of the planes of the cube. But the scientists did not need a model to calculate fourth power problems. They were able to handle it very easily algebraically. They did it by using what they called an imaginary number, e.g., by using the square root of minus one. If that sounds complex, don't let it bother you. What they were doing was simply saying they had a cubical clock. In effect, their cubical day consisted of eight little cubes around the center of the big cube. The first dimension used up one cube, the second dimension used up four cubes, and the third dimension used up all eight cubes. Their day's entire clock capacity would only take care of "three dimensions." So what they did was to borrow cubes from "tomorrow"—or from "yesterday." They then carried out their problem algebraically without reference to any conceptual models. After they got finished, they'd paid back the borrowed time and once again had a visual three-dimensional model quantity. When you use 60 degrees for your coordination, you don't need imaginary or complex numbers to carry out fourth power calculations because there is a volume of twenty tetrahedra around one point instead of eight. Two to the fourth power is sixteen, and I've got twenty tetrahedra around a point. There is an additional two to the second power in the model which comes in very usefully when this vectorial grouping around a common nucleus is employed to account for nuclear energy behaviors. When the nuclear group of vectors has a radial or edge molecule of two (as do the eight cubes in closest packing), then the vectorial system has a volume around its center of 160, which is $5 \cdot 2^5$. It is perfectly possible today, then, for a child to make fourth and fifth power models with tetrahedronal and octahedronal building blocks. Einstein was working on fifth power problems in his last days, trying to reconcile gravity and electromagnetics.

I was able to say to Lord Snow, who was then Sir Charles, that I had found an arithmetical-geometrical, energy coordinating system which apparently coincided rationally and comprehensively with nature's behaviors which you could make models of and which could handle the fourth and fifth power problems which three-dimensional cubes could not, which latter fact had accounted for the discard of models and the preoccupation of science with a completely abstract treatment of nature.

Linus Pauling received his first Nobel Prize for his contributions to the general knowledge of chemical structures. He gave me his Nobel Laureate paper to read and it was the best and most concise history of chemical structures. The first part of his paper is about organic chemistry.

It was in the years around 1800 that the organic chemists, in making experiments, discovered that associating/disassociating of organic chemistry seemed to be always in number increments of 1, 2, 3, 4. Those were the only numbers you had to have to account for your experiments. In about 1810, a man named Frankland was the first to make any written notation of that. Then two men, Kekule and Cooper, added a little more of the same. In 1835 a Russian, Butlerov, was the first to use the expression "chemical structure." And he was the first to say that 1, 2, 3, 4 seemed to have something to do with "bonding" together. He called the bonding "valence." Then there is a gap in further fundamental discovery up to 1885 when a man named Vant Hof said he thought the oneness, twoness, threeness, and fourness were the tetrahedron's four vertexes. Vant Hof was looked at askance by the other chemists. He was called "an outright charlatan." He was called a faker of every kind. Otherwise the chemical scientists paid no attention to him. He was greatly stunned, but went on with his experiments and lived to make optical proof of the tetrahedronal configuration of carbon, the combining master of organic chemistry. Vant Hof was the first chemist ever to receive the Nobel Prize. From this point on, chemistry recognized that organic chemistry was tetrahedronally coordinate. Two tetrahedra linked together by one vertex of each is a single bonding—very flexible, like a universal joint—like gas. Many tetrahedra so linked could be stretched to fill much more space than if linked mutually by two or three vertexes. Two bonds form a hinge—as yet flexible but quite compact as a system—like water. Triple bonding is rigid, like crystals. You can get four vertexes of tetrahedra together, which means they are congruent and most densely compacted, possibly like *diamonds*.

In Vant Hof's day, the majority of the chemists were metallurgists and they found no vertexial bondings. That was probably one reason the chemists in general had been so against Vant Hof. Even though he was finally successful, his contemporary metallurgists said, "We don't find any tetrahedra in our metals! Even though there seem to be visible crystals in nature such as octahedra, rhombic dodecahedra, etc., we can't find any way to account for their atomic structuring."

Linus Pauling, in 1932, approximately a half-century after Vant Hof, was the first to us X-ray diffraction machines to probe metal structures. X-ray diffraction machines operate very much as does the radar. X-ray diffraction sends X-rays right into the atoms and they bounce back and give pattern information, but not regular photographs. But you could make a photograph. The photograph was such that you bounced it against something and it bounced out of there, so that what was really at the center was outwardly in the photograph and vice-versa. It's really quite difficult to reconstruct the

X-ray diffraction photographs into "pictures" of the shape of the explored patterns. Expertness is involved. Linus Pauling, applying X-ray diffraction to metals, discovered that all the metals which he analyzed were tetrahedronally coordinate, but instead of being linked vertex to vertex, they were linked mid-edge to mid-edge often with common centers of gravity. We can make a red-edged tetrahedron's six edges by making a set of six contiguously-ended red diagonals in each of the six faces of a cube. Each red diagonal will occupy only one of the two diagonal paths across each of the six faces of the cube. We may therefore make a second blue tetrahedron occupying the six alternate diagonal paths of the cube's six faces. The blue tetrahedron and the red tetrahedron have a common center of gravity. That's one way metallic atoms combine.

I'm taking a lot of liberty with you, but as it was said in the meeting a little while ago, you are a very important group. You are dealing with education of human beings and there is something pertinent, unexpected, and fundamental coming up in my widely ranging discourse. It relates to the arts and the sciences—the humanities and the sciences—far more intimately than it has been our custom to think. It is therefore germane to the central inquiry of our conference: art education and its possible contribution to science as a conservator of intuition, imagination, and unique initiative.

While Linus Pauling has not to my knowledge said as yet that all metals are tetrahedronally coordinated, so far no exceptions have come to my attention. Pauling's Nobel Laureate discourse twenty years after commencing his X-ray diffraction explorations discussed no exceptions.

I will now say to you that organic chemistry has for eighty years recognized tetrahedronal coordination. Twenty years of X-ray diffraction has found the metals tetrahedronally coordinate. I came to this subject in an entirely different way from that of the chemists and have found the tetrahedron to be the coordinating unit in experimental mathematics, which is what the scientists call my work. Therefore, I will say to you what I said to C. P. Snow: "All of nature's formulating is tetrahedronally coordinate." Snow, a scientist, said, "From what you have related to me, I am inclined to agree with you; in fact, this information happens to come at a very strategic moment in my life." In the 1965 New Year statements harvested by the press from world leaders, Lord Snow had quite a long piece saying that he now was retracting his "two forever unjoinable worlds" statements. He felt he was wrong and it looked as though the chasm between the two was closing.

I was in Ghana in January, and I received a telephone call from the British Broadcasting Corporation, asking me to come to London. When I reached London, I learned something which to me seemed extraordinary. This, too, is a long story but pertinent. Six years ago I had begun to get letters and photographs from two nuclear physicists who were leading virologists—Dr. Aron Klug, of Berbeck College at London University, and Dr. Donald Casper, director of cancer research at the Boston Children's Hospital, now at the Cavendish Laboratories at Cambridge University. These men, using X-ray diffraction also, were finding the shape of the protein shells of the virus to be similar in appearance to my geodesic domes.

Very quickly I want to point out the general significance of virology. In the range of magnitudes between macro and micro cosmic limits of exploratory knowledge, there seem to be "octave"-like levels of unique pattern phase relationships. The microdomain of the virus is that in which the tobacco-mosaic experiments first showed that the domain of the virus is apparently the threshold between what we have known in the past as the inanimate and the animate. The virus follows all the behavioral laws of being an inanimate crystal, but also follows all the laws of animate biology. It is both animate and inanimate,—in fact, because it follows both requirements, you have to say there is no difference between animate and inanimate phenomena. As a threshold, the virus overlaps both. It does not divide them. It calls for a very different concept of what we *are*, physically; it asks just how physical is life and what is unique to the individual? Within the virus, we have the now famous *DNA* and *RNA*, the nucleic acids consisting of four chemical compounds whose *interpatterning* sequences in helixes *controls all patterning of all the designs of all life*—all the biological forms design-scheduled by DNA and RNA. Investments by world society for the search in the virus domain are great. This is the most probable area in which to find the clues to the possible control of cancer, for here in the virus is the control of the design of life.

A virologist is a very interesting kind of man. He was rarely trained to be a virologist; he was trained as a specialist—as a nuclear physicist, a mathematician, a chemist, a biologist, or a geneticist. But as virologists, they become one: an unusually comprehensive thinker—an integrator of widely held findings of science.

Just preceding and during World War II, scientists began to find their microscopes getting far more powerful. As a result, their field of observation began to overlap. My original hunch about nature having only one department became increasingly valid. The scientists found themselves forced to adopt hyphens to describe their work—bio-chemistry, etc. The virological teams find themselves inherently comprehensive—they deal with the whole show. And so the men who are good in virology are really extraordinary men, and tremendously articulate. Any good virologist sitting in with us today, would find no trouble in participation in your subject. In fact he would probably be able to lead you in formulating a grand strategy of attacking your special problem. Virologists deal exclusively in fundamentals of structural design and how best to communicate our findings and intuitive formulations.

The virologist discovered the proliferation of my geodesic structures, which had emerged from structuring aspects of my energetic geometry studies which pursued nature's most economical strategems. In 1957 Klug asked if I could identify the geodesic-like protein shell of the polio virus. I was able to give him the mathematical explanation of the structuring. Gradually, I heard from more virologists. I was told by a Johns Hopkins scientist the other day that she had read over twenty papers by scientists identifying my mathematical work—such as I've been giving you today—with the findings of their own investigation areas.

I was told by BBC (Feb. 1964) that they were about to open up a broadcasting on a new channel 2, using colored TV, telestars, and other electronic advances, and that they were about to reach audiences many times larger than their old channel ONE viewers. New receiving sets would be necessary for tuning in channel 2. To warrant their old audience's purchase of new TV sets BBC felt that they must present programs of higher standards than ever before. They said, "Let's see if we can't take our experience and step up the quality of our program." For their step-up in content quality they took the most popular hour, which is 9:30 Saturday night, and set about to produce a science program once a month which they hoped could be so well done that it would displace lower calibre amusements through spontaneous popularity. BBC got together its directors, who had done science programs and chose the director who had done the Cavendish Laboratory documentary of Drs. Watson, Wilkerson, and Crick—the DNA-RNA team which won the 1963 Nobel prize. This BBC director—Ramsey Short—

went out to the Cavendish Laboratories at Cambridge University, England and asked their scientists what they recommended as the subject of the first channel 2 science program. The Cavendish scientists said, "Buckminster Fuller would be appropriate because TV must employ visible phenomena and Fuller has found the bridge of structural conceptuality to pure science exploration."

In the nineteenth century the literary man had the models taken away from him. He had no model to explain science to the people. Popularization of science employed superficial romance. True science was shunned as too difficult—dry obscure blackboard equations.

Since conceptuality is returning, it was felt that the first television program should deal with a fundamental bridge.

So the program started with giant geodesic radomes in the North Rydings of Yorkshire and was done partly in the Cavendish Laboratories and partly with architectural students of London's Architectural Association. When it was finished, the BBC art directors were delighted with it—they said it was a good art show. This alarmed the BBC executives who said if it was very good art, it couldn't be very good science!

The program was broadcast in April '64. Those of you who are familiar with England know that the English critics are both plentiful and articulate. The science critics acclaimed it, so that it was successful scientifically. So also did the art critics. (I haven't seen the program myself, but that's the way life goes!) However, I'm confident that we have in reality, closed the science-humanities gap with kindergarten conceptuality.

At half of today's meeting, when we were talking with the representative from the U.S. Science Foundation about what science is, science remained obscure in its advanced mathematics wrappings. I asserted (without benefit of the integrated information I am now reciting) that man is coming into an extraordinary new era on earth, in which we are going to be able to deal conceptually with advanced science. In as much as conceptual communication is art, art will become intimate with science; and philosophy will be able to comprehend the significance of developments; and thought may enter upon new speculation and altogether new comprehension.

One more item—have any of you read a book by Professor Benjamin Bloom of Chicago University? He is Professor of Education, is head of the university's curricula committee. He has written a book "Stability and

FIG. 15.—Pre-school child painting.

Change in Human Characteristics"—Wiley—publishers—in which he has listed a number of experiments and case histories of lives from birth through university age which correlates progressively taken I.Q. tests with environment and the effects of events that happen to life at various age levels. The conclusions are astonishing! If you can give Dr. Bloom an adequate report of environmental factors governing a given young life from birth to seventeen years of age—such as description of the home—private bathroom or no—drunken parents—play only in streets—etc. he can give you the I.Q. of that life within one per cent. There are built-in "alarm clocks", according to the neuro-physiologists which go off at unique moments, which put "capabilities" progressively in operation in the new life. If the new capability is frustrated at out-set it is frequently relegated to disuse. At the age of four, fifty per cent of the capacity to improve his I.Q. capabilities either have been expended or protected. Teaching doesn't add capability. Teaching can either gratify or frustrate capabilities. Usually they get badly damaged. The I.Q. is most directly affected by what happens in the first four years. Between four and eight, the next 30% "of capability to self-improve I.Q." is brought into operation and either frustrated or gratified. Between eight and thirteen years, 12% more of potential capability is actuated totalling 92%, and at seventeen 100%. After 17, the most any human being can do to actuate more I.Q. is 0%. About three billion dollars a year is appropriated jointly by the United States and the local governments, for higher education where the most possible self-improvement of I.Q. capability is zero per cent. Where 50% actuateability of I.Q. occurs—that is from zero to four years no appropriation is made. The only area where important chance of conserving and improving capacity occurs gets the small money going into kindergarten, elementary, and junior high school. The greatest schooling opportunity birth to four is teachable through the T.V. only—The right T.V. programs for both child and parents could up the national I.Q. by a large per centage.

Dr. Bloom shows that from birth to four years old there are three clearly defined factors which govern the inauguration of capability to improve I.Q. (at any later date) or what part of that first 50% is to be lost. Factor number one is *trust*. Human young stay helpless longer than in other living species. If the new life, for any reason, has its utter trust in its parents violated, it is pretty sure to be a drop-out. The next two factors after *trust* which govern the one to four years are *autonomy* and *initiative*. You don't know how to tell the extraordinary new life how to stand up—it just stands up by itself when ready. The initiative is innate. The parents have to be sure the child has plenty of room of its own, expendables for the new life to "check out"—tension—cohesion, etc. by trying to tear things, etc. From four to eight, there are several clearly defined factors governing favorable or unfavorable inauguration of 30% of total capability to ever improve I.Q. The new five to eight year old factors are ones to do primarily with the leadership of the parents. If the parents speak their native language properly, effectively and with joy in a constantly improving vocabulary, it will have a very favorable effect on the child. Blasphemy or slang, a mark of an inferiority complex that is afraid to speak out clearly and constructively, will close off the six year old's brain capabilities.

Availability of good books on the shelves is an important environment plus. While the child cannot read the grown-up's books, its intuition detects a drive or lack of drive for self-improvement in its parents. It seems important to our meeting on clues for detecting the gifted school child through art teachers that Dr. Bloom's finding be known. When we know that ages 0 to 4 are the biggest "school" opportunity and when we discover that entirely new mathematical simplicities are at hand, we must realize that educational theory is in for a complete revolution. There is no question about it—an educational revolution is upon us.

Labor opposes automation only because everybody is scared about their jobs. It's perfectly logical for them to be scared about their jobs. But we're beginning to do something about it which goes back to the post World War II G.I. Bill.

We have said we will take all the people who are unemployed because their machines have become automated, and teach them a new skill relating to another machine. But soon the advancing state of automation will be such that by the time they have learned to operate a new machine, that one will have been automated too! They will simply stay in school studying how to operate obsolete tools. What we are going to do about all this is the following. First we must reorient our eons-long nervous reflex conditioning. It is not strange that we are so negative-minded regarding man's potential behavior on earth. He has had up to this century, a one in one hundred-chance of primary success. It is logical that we think of *unemployment* as a negative, rather than realizing that it is signaling society that it now has the ability to free people from the necessity of demonstrating their right to live by gaining and holding employment.

The kind of wealth we're actually dealing with—the industrial wealth—has nothing to do with the old monetary gold, whose retention in balance of trade accounting is a mark of innocence of society and an economic expansion cancer. Our present real wealth is, exclusively, the organized capability to take powerful energies of the universe, which are transforming their patternings in various ways as yet uncontrolled by man, and shunt them through channels onto the ends of circularly arranged levers which man invents so that the energy turns wheels and shafts to do all the work. In doing the foregoing we're taking nothing from the energy capital of the universe. The physicists made it very clear that energy can neither be created nor destroyed. You can't exhaust that kind of wealth. It is not physically exhaustible. And in fact, our relationship to the energy wealth is an intellectual one. It says that every time we make an experiment with physical energy wealth we learn more. Even when we only learn that something we thought might work won't work, that's learning more! Every time we make an experiment we learn more, we can't learn less. Because universal energy is inexhaustible, and our intellectual advantage gains with us, our wealth is continually gaining. We're continually upping the relative metabolic advantage of man in the universe.

One of the reasons I can talk to you the way I do is because I am a comprehensivist in an era of almost total specialization. By fortune I go many places and get experience in many directions—I keep in touch with many. I can tell you that at the present regenerative state of intellectual experience and mass science and mass technology that there is the probability that for every 100,000 we "educate" through to a bachelor's degree, there will be a science-technology realization by one of the 100,000 so world advancing that it will pay for all the other 100,000 people's education and livelihood without their direct contribution to the techno-scientific break-through. That capability is now in operation so that in order to progressively elevate human dignity, we're going to be able to afford to give everyone student fellowships in any subjects they elect – fly-fishing studies are o.k. – everyone's going to go back to school! Man no longer has significance as a muscle and brain reflexive machine. The Marxian worker slave is going into extinction. He is not needed. Man is essential to the success of the industrial equation as a consumer. The more consumers there are, and the more frequently they consume, the more successful and swiftly increasing is the industrial wealth capability. We can only justify the vast investments in world-around industrial networks of structures and machinery by the numbers of spontaneous consumers that are served. Because the initial tool-up undertakings takes months and years, as well as vast billions of dollars, the more valid consumers there are to divide up costs, the lower the costs and the quicker the total amortization and inauguration of improved tools and efficiency. Therefore, man becomes a regenerative consumer. The more he consumes, the more he learns, and the factor that increases the wealth is the "know-more" factor. We can afford to send everybody back to school, there are a great many people intent on learning and finding out something which increases the common wealth. Those who go fishing may inadvertantly make a great contribution through just "taking it easy" and doing some good retrospective thinking. And this inexorably is the way history is going to unfold. We will not undertake this new education and wealth-regenerating spontaneously within our country. We don't agree and coordinate that fast. But the competition from Russia, China and others will force us to this logical measure. Economic competition is the catalytic factor. Because the Chinese now have the most potential consumers they can eventually produce at the lowest prices! To keep pace with that competition, in a very short time we're going to be forced to go into total automation to find ourselves amazedly successful.

I'll give you one more picture to vivify what is happening to us. This picture is of the now visibly developing the new "World Man". We had in the news a few years ago, a man who talked about being a "world citizen", you may remember, an American in Paris. Society not only laughed at him as a dopey renegade, but now, unexpectedly to all, everybody is beginning to experience more and more travel. World citizenry is coming about by itself.

There is something going on with respect to the U.S.A. we haven't paid much attention to. Figures were published in last month's *Exchange* magazine, published by the New York Stock Exchange, regarding foreign investments. There are two kinds of foreign investment—one is called indirect investment which means purchase of shares in foreign enterprise. The other kind is called direct investment where you buy land, put up a factory and start producing something. That's called direct enterprise, or direct investment. U.S.A.'s citizens' and corporations' investments in foreign countries started up at the turn of the 19th into the 20th century. There was a jog down in the historically rising curve during the 1929-1942 depression, and now it's going up again, ZOOM! It's resumption of the original acceleration rate indicates that it was trying to happen all the time and that the depression dent was abnormal. It's now up to better than $70 billion and the direct earnings from it each year now exceed four and one half billion dollars. Every major corporation is in this outward bound move. The hundred largest corporations in the U.S.A. are now spending four out of every five new plant and machinery dollars in countries outside the U.S.A. General Motors last year, through its total foreign investment is only 10% of its whole, made one third of its total profits from its foreign operations. General Motors total net profits after taxes were one and one half billion dollars.

Arthur Watson, of IBM International, says that the old foreign trade language such as speaking of "Germany trading with Russia" or "England with France", or any country trading with any other country is now as obsolete as speaking of New York City trading with the City of Chicago. Industry is inherently world-around and is inherently world business—we have no other characteristic but "world".

This *world-identity-only* trending of big business promises a surprise which is that world citizenship will not occur as a political initiative. The economies of this exploding industrial world activity soon will require world citizenship for its personnel.

I want to precipitate your awareness of the reality of the points I have been making by asking you, "If everybody who teaches school because it's the simplest way of making a living were given a well-funded fellowship to study whatever they wish, would they?" If humanity receives universal fellowships—all expenses paid plus a comfortable bonus, would humanity not stop asking itself, "how can I earn a living" and start asking "what is it that I'm interested in, and what could I do to help make the world work more satisfactorily, more interestingly?"

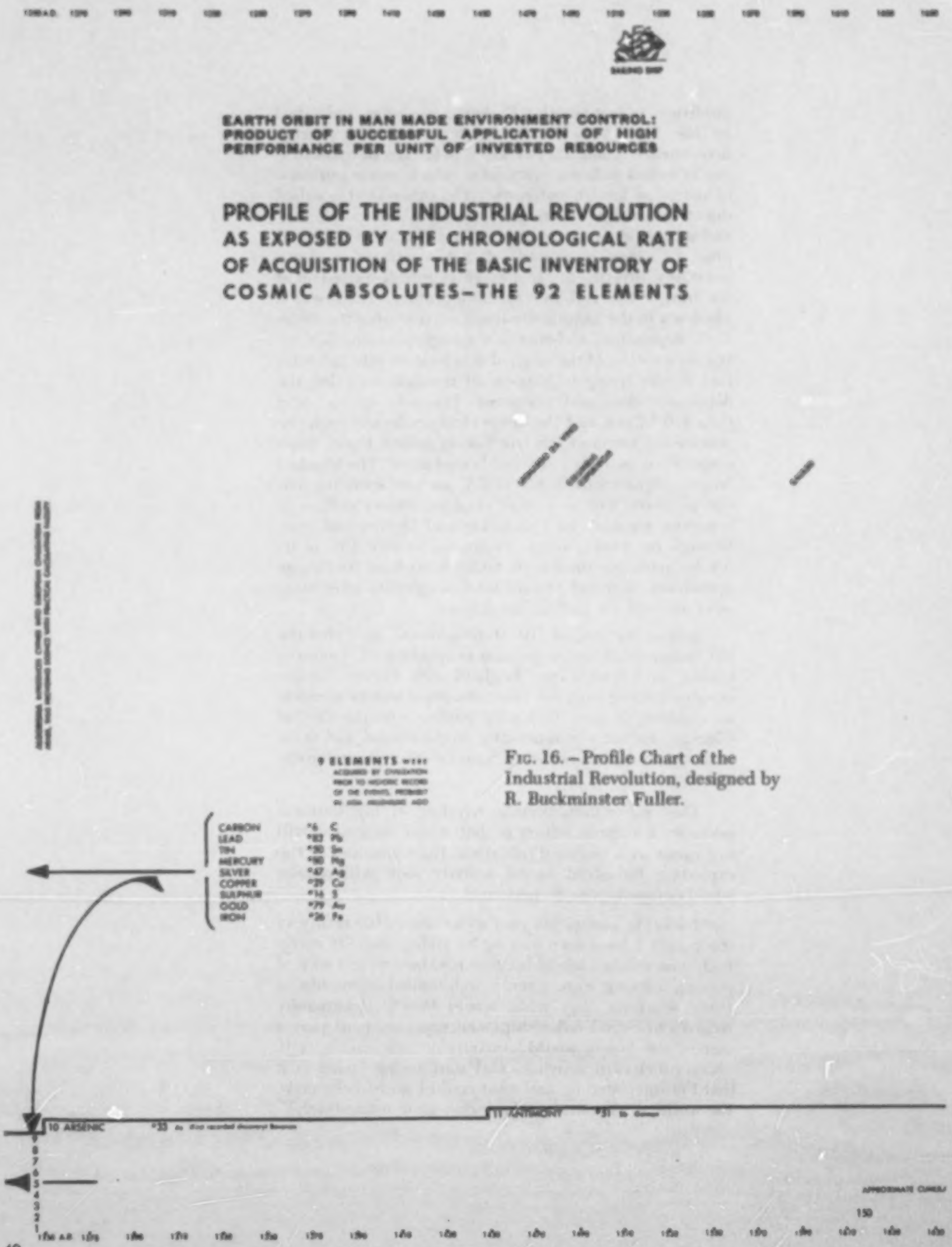
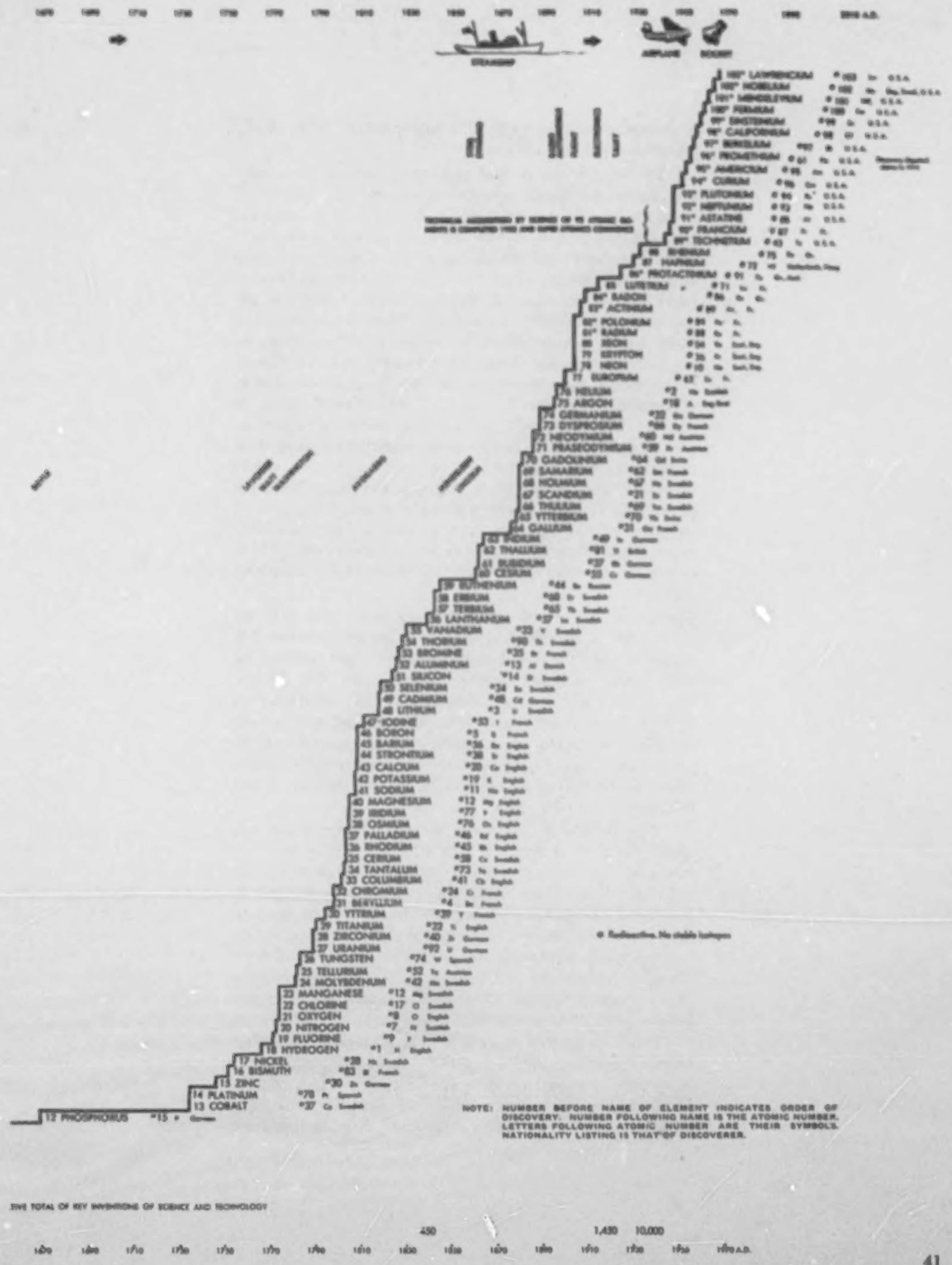


FIG. 16.—Profile Chart of the Industrial Revolution, designed by R. Buckminster Fuller.



NOTE: NUMBER BEFORE NAME OF ELEMENT INDICATES ORDER OF DISCOVERY. NUMBER FOLLOWING NAME IS THE ATOMIC NUMBER. LETTERS FOLLOWING ATOMIC NUMBER ARE THEIR SYMBOLS. NATIONALITY LISTING IS THAT OF DISCOVERER.

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This used to be a studpidly altruistic question. It suddenly becomes a very logical one.

I've been trying to find a curve, something that really represents the fundamentals underlying the history of industrialization. I have found it. It is a curve of acceleration reliably portraying the fundamental rate of impingement of science and technology upon man, as referenced to regular calendar clock time. Lists of historical inventions and discoveries are formless because they are inherently open-ended, i.e., *infinite*. There is one closed or finite family of pure scientific events. It is the history of the isolation by man of the ninety-two regenerative chemical elements. Membership in this family of prime universe patternings requires a "credit card" identification of specific and uniquely consecutive matching electron-proton numbers. The family must consist of all ninety-two unique sets from one to ninety-two electron-proton counts inclusive, and none other. That is the curve herewith presented. To it has been added the curve of the rate of isolation of the, thus far, subsequently isolated, non-self-regenerative chemical elements beyond ninety-two. These elements of negative universe are shown for comparison only.

The chart covers 800 years. It runs from 1200 A.D. to 2000 A.D. Nine chemical elements (see list at lower left corner of chart) were already known to and isolated by man when recorded history dawns. The first known isolation of a chemical element was that of *arsenic* in 1200 A.D. in Italy. There is a 200-year lag to the next isolation—*antimony*—then another 200-year interval to *phosphorus*, then only a half-century gap to *cobalt*, whereafter, the list takes "off" averaging a climbing rate of one isolation every two years.

The swiftly rising curve is not smooth. There are three distinct slow-down "shoulders". These are occasioned by periods of universal warring. Pure science activity, which these isolations represent most truly is frustrated altogether by the atmosphere of war. Because the earlier discoveries of science are often converted to technological advantage in wartime, science has been thought, erroneously—to prosper in wartime. What prospers is applied applied science and production technology but not *pure science*, not *basic thinking*.

It is seen on this chart that 1932, popularly identified as the "depth of the depression", is, in fact, a moment of epochal success. In 1932 the last of the finite family of ninety-two regenerative chemical elements, occurring spontaneously in nature, was isolated. For the first time in known history man had in neat "know-how cans" on the "shelf" all the basic ingredients for reassembling the physical universe's basic pattern behaviors in preferred arrangements. This permits greatly increase performances per units of controlled and invested engergies. It makes "possible" theretofore undreamed-of physical advantage gains to be realized for all of *humanity*. It is the beginning of man's consciously successful participation in the evolutionary events of nature. This conscious and scientific participation, in turn, leads swiftly to realization of physical, metabolic success of man in universe.

After 1932 and the ninety-second *isolation*, there is an important, but temporary, slow-down in further isolation. Scientific man became momentarily preoccupied in taking apart the nuclei of those fundamental chemical elements. Fission and the *theoretical release* of the elemental energy five years later, and *realistic release* twelve years later, was inevitable to that ninety-second and final isolation of the full family of prime elements in '32.

It is interesting to note that the post-uranium element isolations, starting with ninety-three, occur with extraordinary regularity. Witness the approximately straight line ascent of the post-ninety-two isolations as well as the direct correspondence of the elemental numbers with the numbers representing the successive order of isolations. This correspondence is unlike the discovery pattern theretofore occurring. For instance, isolation number ninety-seven is berkelium—element number ninety-seven—, with ninety-seven electrons and ninety-seven protons.

In the first ninety-two isolations, however, the order of isolation does not correspond to the atomic number order. The *twenty-eighth isolation* was zirconium—element number *forty*; the *thirty-first isolation*, beryllium was element number *fourteen;* the *eighteenth* isolation was hydrogen, which was element number *one*, meaning one electron and one proton and so forth. None of the atomic numbers correspond to the number in order of successive isolation within the "first family" of ninety-two elements.

The extraordinary pattern disclosed by this curve of man's acquisition of fundamental controls over the basic energy patternings of nature portrays only the evolutionary rate of development of pure science. It is *subjective* in that it establishes only a *potential use-advantage* for man. Without discovered use or technical capability to use having been as yet invented by man, this pure knowledge remains only *potential*.

In view of this curve of development of the high fundamental potential, it is appropriate to ask ouselves: - What is the most comprehensive change in the relationship of man to his earth and his universe that may be realized physically by the application of this "pure (physical) knowledge?"

Probably the most significant consequence of the application of this knowledge is man's alteration thereby of his ecological patterning in universe.

Amongst all the species of life on earth, none of them, other than man, has consciously participated in the fundamental alteration of their overall, lifetime ecological sweep-out patterning. Eels, plovers, and many other biological species *unconsciously* were forced to alter their total lifetimes' cumulative ecological patterning—by the comprehensive earth surface changes induced by the successive ice ages. As ice receded, cold-area-breeding types of life were forced to ever-larger annual migrations between the most favorable *tropical feeding grounds* and *artic breeding grounds*, respectively. This was *unconscious* participation in the fundamental alteration of ecological patterns. The designing and building of an hydro-electric dam or development and production of an antibiotic constitutes *conscious* participation by man in the evolutionary pattern transforming of universe.

Up to and including, my own father's generation, men were limited essentially to motion accomplished almost exclusively by their own leg motion—mildly increased by horse and vehicular travel. In 1914, American man was averaging 1640 miles per year total travel. Thirteen hundred miles were accomplished by his (integral) "vehicles"—legs. Vehicular augmentation was a motion increase of only 25%. As a consequence of mass production of the equipment of mobilization during World War One, in 1919 U.S.A. man covered 1600 miles by vehicles alone—in addition to his continued 1300 miles per year walking—a total of 2900 miles per man. By 1942 U.S.A. man was averaging 4500 miles per year by vehicles plus 1300 miles per year by legs or an annual total ecological sweep-out of 5500 miles.

In view of the "life expectancy tables" we find that the total miles of an average human's lifetime's mileage to-and-fro-ing, ecological "sweep-out", up to and including my father's lifetime, was only 30,000 miles. However, at 69 years of age, I have already covered three million miles which is one-hundred-fold the lifetime distance accomplished by humans of any previous generations. I am one of a class of several million human beings, who, in their lifetimes, have each covered three million miles or more. The class of senior airline pilots has covered several-fold my three-million-mile "sweep-out". Astronauts equal my three-million-mile "sweep-out" every one hundred circuits of the earth, i.e., in approximately every four days of Earth orbiting. All these dramatic alterations of the ecological pattern of man have accrued directly to the inventory of Cosmic Absoutes—"canned" and put on the "potential shelf" by the pure scientists, working like bees to store the "honey" utterly unaware of the value to man of that honey or of what man will do with it.

To realize *ecological pattern transformation* requires that man penetrate environments theretofore intolerably hostile to his naked existence. His invention of hats and clothing first permitted man to penetrate hot and cold regions theretofore intolerable to him. Clothing represented man's first environment controlling and ecology transforming tool. When man built himself a house making possible his existence during external development of hostile conditions, it did not alter, however, his ecological patterning geographically—anymore than did his retreat into a cave. To make fundamental alteration of his ecological sweep-out, man must propel his harm immunizing, controlled environment into geographical realms of previously intolerable environmental conditions. He must propel the environment controlling device either by his own power or by his control of power systems external to and greater than his bodily power system.

In order to maintain a *uniform measure of the magnitude of effectiveness* of such (previously intolerable) hostile environment penetrations by man, I have documented man's circumnavigations of the earth—inside his succession of improved environment controlling machines, propelled by energy patterns, which, though indirectly controlled by man, are none-the-less external to and greater than his integral, metabolic energy conversion, propulsion capabilities.

As shown by little symbolic pictures along the top area of the chart, the first such circumnavigation of Earth by man was accomplished with the wooden sailing ship, which took approximately three years. About 350 years later man circumnavigated Earth in a steel steamship, taking approximately three weeks. Seventy-five years later he circumnavigated the earth in an aluminum airplane, taking approximately three days total flying time. Thirty-five years later he circumnavigated Earth in an exotic-metal structured, rocket capsule, taking a little over an hour for each orbit cycle.

We have in the intervals between the progressive modes of circumnaviation as well as in the contractions of the successive elapsed times for the circumnavigations both a second and third power acceleration of the original velocity rate of pure science growth as demonstrated by the prime family of ninety-two chemical element isolations. To be realistic we must now multiply this third power acceleration by a fourth coefficient. The fourth coefficient is the conceptual regeneration induced in the human mind by the concomitant *visual information* circumnavigation of Earth now being accomplished by the team of Telstar satellites whose world-around relayings of the electromagnetic wave-borne TV communications will result in a four dimensional acceleration of man's teleologic and conscious participation in universal evolution.

The extraordinary fourth power acceleration thus to be realized by man in the distribution of technology generating information, through computers, electronics in general, and the world around information relay. will integrate the total acceleration of the rate of human ecology transformation to a fifth power progression. Within ten years anything reasonably "thinkupable" by science fiction will probably have been realized.

I know of no device as effective as this chart to generate comprehension of the unprecedented rate of experience acceleration into which man has now entered.

Along the bottom of the chart the numbers 150, 450, 1450, and 10,000 occur in approximation of the cumulative number of key science and technology inventions realized by all men, everywhere, up to the historical dates at which those numbers are posted. I have not yet made accurate check of 1964 figure, but it is in the magnitude of millions. It can only be measured effectively at a later date.

The rates of contraction that I am showing you here are extraordinary. Anybody who wants to go around the world by radio may soon be frequency scanned with a mass spectrometer, and radio transmitted.

Anything can happen now—so when I give you these reports, I want you to feel the significance in relation to your deliberations. You don't have to hesitate about getting up a good documentary on an educational revolution. That wouldn't be much of a jump! I know you agree with me but society won't—right away—but soon will demand it. I would really like you to be as daring as you know how. I talked to Mr. Osborn about television potentials and he said "our children have to sit there and for twenty four hours a week have stuff sent at them about cereals—twenty-four hours a week squirting cereal pictures—messy ones!" So we are victims of what we call broadcast. It is a one way street. How to take it—you can't talk back. It started with what we call the telegraph news. Before that man communicated two-way—man-to-man. With the telegraph source the newspapers were able to broadcast news at us. Up to that time we'd been in one-to-one correspondence of stimulation and response effectiveness. If in 1800 we received a letter by sailing ship from France, we would tell our Senator about it. He would talk it over with our townspeople and then go to Washington and say we got a letter from France, and this is what we better do about it. News was personal and easy to control. With the telegraph, hundreds of things were told to us and we didn't have the chance to tell anybody what to do about all the items of importance. Then came the radio broadcast and today TV. Now 20,000 propositions accumulate before a presidential election once every four years and give us only a one shot response. We vote for the least objectionable of the personally unknown characters. You vote "against." You don't vote *for* anything. It's really a negative kind of pop-gun reaction!

During World War II we developed radio, telephone and TV beaming. We began to work with very short radio waves—the early radio waves were as much as one mile in length—obviously too large to mirror. Just before Pearl Harbor the controllable lengths had shortened to two and a half meters. With World War II we got down to very short waves that you could reflect practically. You could beam the radio waves. Whereas, before World War II, we thought television was going to have to go over a coaxial cable, from city to city, because you couldn't broadcast it on high frequency systems any further than the horizon, after the war we didn't have to use the coaxial cable because we were able to send by relaying beams from city to city with studio productions in big cities only. Then we got to the small cities and broadcasted locally. And it is quite possible now—because we have such ultra high frequencies and the latest types of lassers and massers to do the following. In each community we may have four masts 1000 feet high. From their broadcasting tops you can see every window in each house. And you would be able to mount at the tops of these masts little tiny relectors with which to beam at each window of each house. Thus each house would have its own private beam coming to it. And once you have a beam coming to you, then you can reflect back and say, "I don't like it", or say "yes" or "no". Or you can dial numbers, or call up any documentary program you want. That's a two-way TV and it will soon get into the works. Thus there will be a strong area of one-to-one correspondence between the human individuals' stimulation and responses. The extraordinary documentary resources will accumulate. We will put into the libraries documentaries regarding the most important ways of thinking. That's a whole lot to have said to you but I don't feel I've been trespassing, because I think you are most extraordinary people and have welcomed my messages which are timely.

Comments Made by Mr. Fuller in Discussion Following His Address

I feel that the high capability of the young who do not happen to have been trained in science goes into their intuitive formulations. Artists are now extraordinarily important to human society. Many who have been called artists are healthy human beings who have kept their inate endowment of capabilities intact. The greatest of all their faculties is the ability of the imagination to formulate conceptually. I feel that it is the artists who have kept the integrity of childhood alive until we reached the bridge between the arts and sciences. Suddenly we realize how important that conceptual capability is. Professor Kepes, of M.I.T., took uniform-size black and white photographs of non-representational paintings by

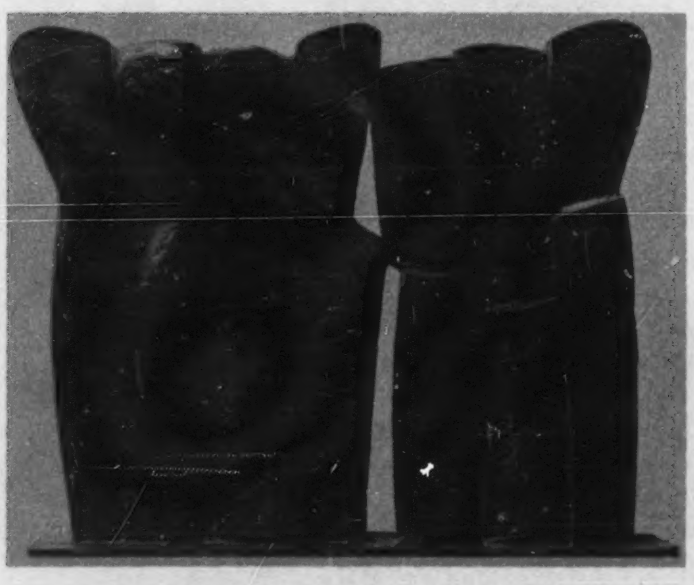

FIG. 17.—*Galley VII*, bronze, 13 x 16", by James Rosati. Courtesy Marlborough-Gerson Gallery, New York. Photo by Rudolph Burckhardt.

> many artists. He mixed them all together with the same size of black and white photographs taken by scientists of all kinds of phenomena through microscopes and telescopes. He and students classified the mixed pictures by pattern types. They put round white glob types together—wavy gray line diagonals, little circle types, etc. together. When so classified and hung one could not distinguish between the artist's works and scientific photographs taken through instruments. What was most interesting was that if you looked on the backs of the pictures you could get the dates and the identities. Frequently the artist had conceived of the pattern or arrangements before the scientists had found their counterparts in infra- or ultra-visible realms. The conceptual capability of the artists' intuitive formulation of the evolving *new* by subconscious coordinations are tremendously important. Much of the essence of what I have been saying to you may or may not be news, but I would not be surprised if tomorrows biggest news is that the artists who best appreciate and conserve our natal capabilities have ascended by acclaim to the premiership of this new era of man on earth.

Additional comments on prevailing conditions in the arts in contemporary society were made by the following seminar participants.

Architect Noel McKinnell described rapidly-emerging patterns of building design and community development, and their already-discernable effects upon the people who inhabit them, which he feld to be essential considerations for art educational reform:

> . . . we, in my generation, are going to rebuild America. We are going to build America again from what it was when we were born or when we came here. There's going to be as much building in the world in my generation as there has been in the entire history of man. I am not sure my statistics are correct, but I believe the population is going to double in the next forty-five years.
>
> This assault by the architect, in just straight-forward physical terms, demands a megastructural approach to the solution of purely physical problems. How are you going to house these people? They are not going to be housed in Cape Cod cottages. They are going to be housed in relatively anonymous agglomerations which will extend possibly not just from Boston to Washington, but from Boston to Florida. In this kind of physical environment and in an economic situation in which more and more people have to do less and less work, the livelihood, the

> problem of identity, and the problem of the alienated person, the person alienated from his physical environment, becomes extremely pressing. Somehow or other people found an outlet for their creative urge in past times. But now we are worried that they are going to be frustrated or thwarted in some fashion. Certainly they don't have the means which they had in past times. They don't have the crafts, they don't have a means of expressing themselves, a means of proving to themselves that they do really in fact exist.

Several participants voiced concern over prevailing attitudes among persons in various walks of life which, they felt, are deterrents to art educational reform:

Christopher Alexander expressed his belief that there is a:

> . . . tendency, even among the highly enlightened group of people in New York to ignore the connection between art and science, to assume that art should proceed happily in its own groove and, in some people's minds, even in opposition to science.

Robert Motherwell said, "I really believe this English-speaking civilization, like all English-speaking civilizations, is so anti-visual it's unbelievable."

On the matter of prevailing attitudes toward art teachers, Howard Conant stated that he and his colleagues in art education had encountered some favorable, but more often passive or tolerant, and sometimes negative attitudes toward art teachers on the part of professional artists, art critics, scholars, educational reformers, school administrators, guidance counsellors, classroom teachers, school custodians, and parents. Henry Hope felt that such attitudes were based more upon unawareness of the scope of prevailing practices (some of which he felt are commendable) than upon outright antipathy toward teachers of art. Harold Rosenberg expressed his belief that a number of enlightened art educators are closer to an understanding of the concerns of practicing professional artists and the intent of the works they produce than are many art historians and art critics.

Several seminar participants expressed concern over the quality of contemporary art criticism, including not only commentary upon the works of professional artists but also evaluations of the works of children, adolescents, and adult amateurs. Certain art critics (including some of those who today are most widely published), a number of seminar participants agreed, do not appear to understand the essential nature of contemporary art; they are not

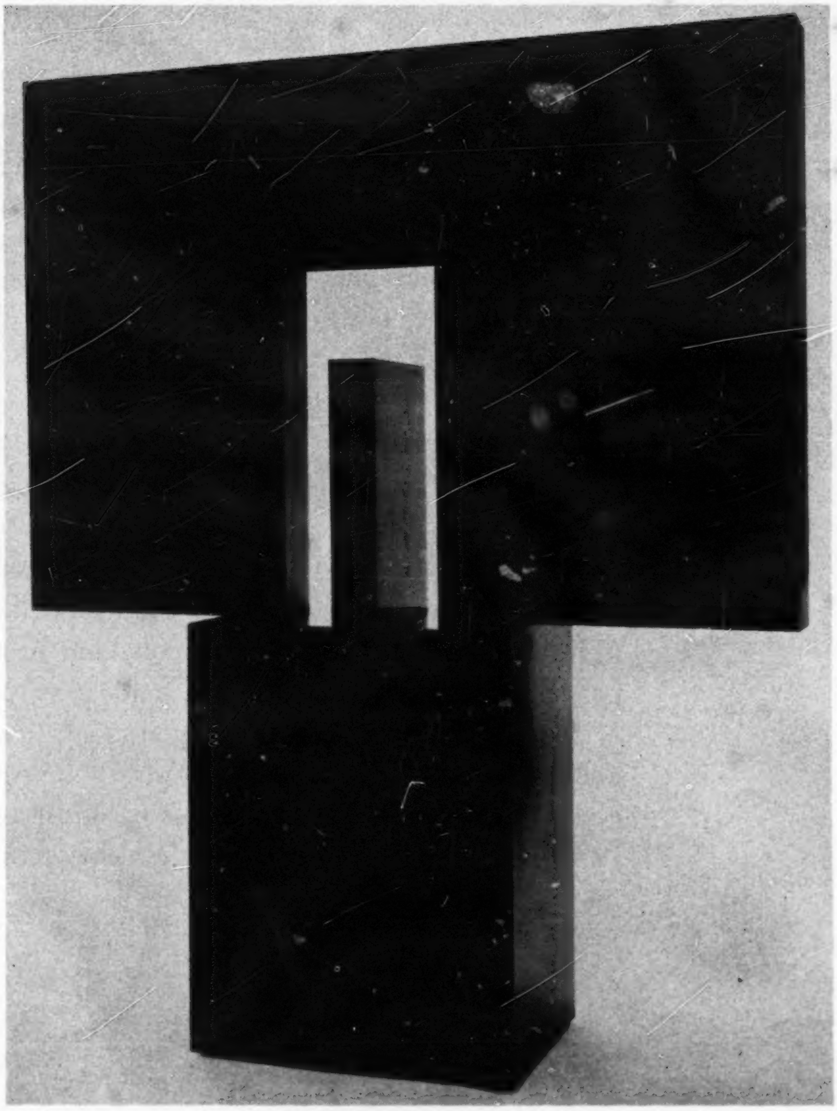

FIG. 18.—*Color Structure*, 1963, formica on wood, 72 1/ x 48 x 12", by Burgoyne Diller. New York University Art Collection (on loan). Courtesy Galerie Chalette.

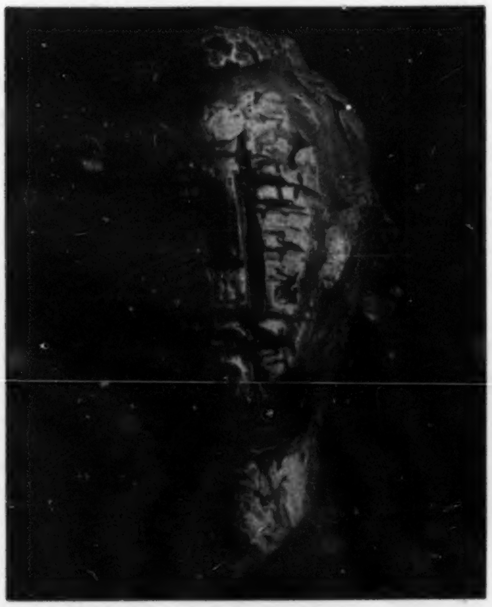

FIG. 19.—*Carmel*, 1964, Bronze, 14" high, by James Rosati. Courtesy Marlborough-Gerson Gallery. Photo by Rudolph Burchhardt.

closely enough associated with leading contemporary artists; and they do not adequately comprehend the artistically-expressive and aesthetically-based nature of art works produced by children and adolescents. It was felt to be most unfortunate that the views of these essentially unqualified persons are so widely regarded as valid, not only by readers of the popular press but by certain members of the artistic community itself.

PREVAILING CONDITIONS IN ART EDUCATION

Participants in the New York University Art Education Seminar were unanimous in their conviction that the quality and scope of art teaching in elementary and secondary schools, and in many art teacher education departments, is pitifully low and inadequate. Much art education, they felt, is based on superficial and inadequately-challenging concepts of both creativity and aesthetics, and the history of art, especially contemporary art, is often grossly neglected or misinterpreted at all educational levels. On a purely statistical basis, the validity of these views is established.

Statistical Data on Art Education

The following data, prepared by Dr. Harlan Hoffa, Art Education Specialist, Arts and Humanities Branch, United States Office of Education,

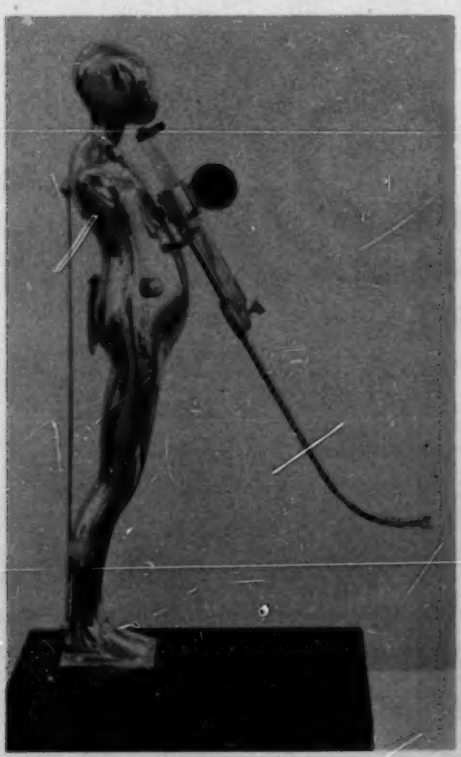

FIG. 20.—*Study: Falling Man Series*, 1964, chrome plated bronze, 59" high, by Ernest Trova. Courtesy Pace Gallery.

were drawn from various governmental and professional publications.[*] Some of the data are relatively fresh, other items go back several years. Also, since varying figures deal with the same issue, it is impossible to vouch for their accuracy. These data do, however, portray a general image of the arts in contemporary education.

Elementary Art Education

One elementary school in five is allocating more time to art than it did five years ago.

The median time allocation for art is about 70 minutes per week.

In about 60 percent of elementary schools the classroom teacher had no available assistance from an art specialist, yet the ability to teach art was not a condition of employment for over two-thirds of the country's classroom teachers.

Only 12 percent of elementary schools have a room for art instruction. Over one-quarter do not have the basic supplies of paper and paint, compared to music in which 43 percent had a room for music and 90 percent had a record player.

Secondary Art Education

The national average of art offerings is about two-thirds of an art course per school (15,126 courses in 22,833 schools).

Almost half of the secondary schools in the country offer no art courses (46.4 percent); but of these, 22.7 percent, report that they were unable to offer art courses because of the lack of a qualified art teacher.

Art history and/or appreciation is an offering in only one secondary school in ten.

Nearly two-thirds of the secondary school offerings are "general art" courses covering a variety of media without structured sequence and without specified content.

Less than 10 percent of schools offer a *succession* of specialized art courses.

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[*] Sources: - U.S.O.E., *Statistics of Education*, 1960-61 Series
N.E.A., *Research Monograph*, 1963-Mc, Music and Art in the Public Schools
U.S.O.E., *Elementary School Administration and Organization*, O.E. 23006A
U.S.O.E., *The Junior High School*, O.E. 20046

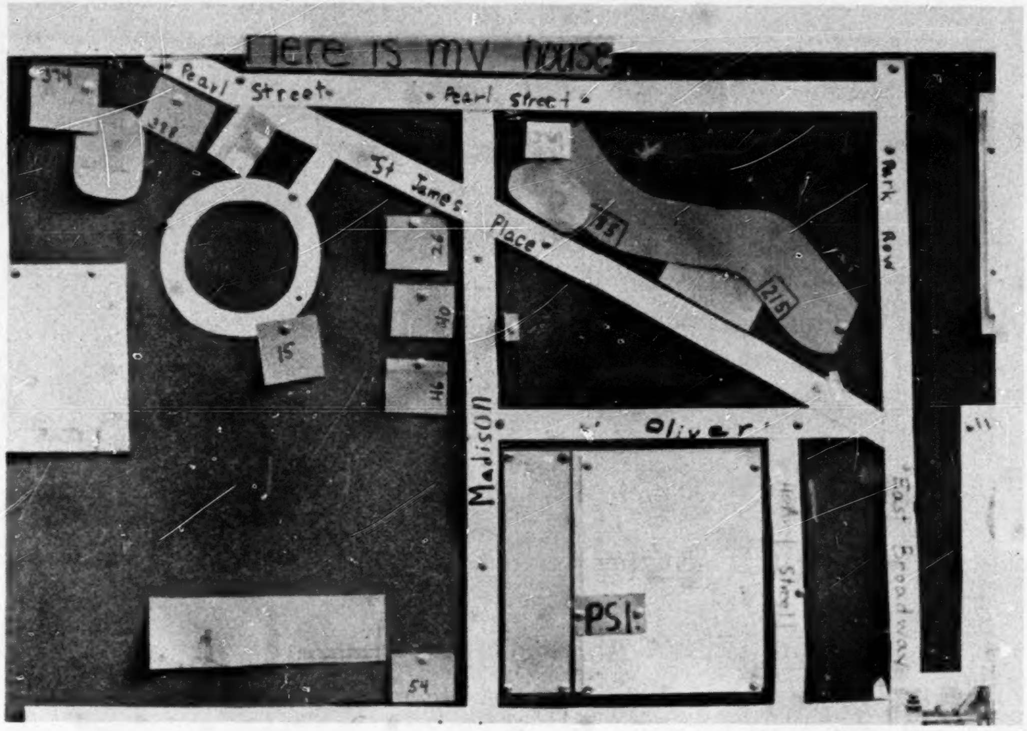
Here is my house
374
Pearl Street
Pearl Street
St James Place
Park Row
26
40
46
15
85
215
Madison
Oliver
PS1
Street
East Broadway
54

FIG. 21.—Bulletin board map created by second-grade pupils under guidance of their classroom teacher. Courtesy Zelda Dana Wirtschafter.

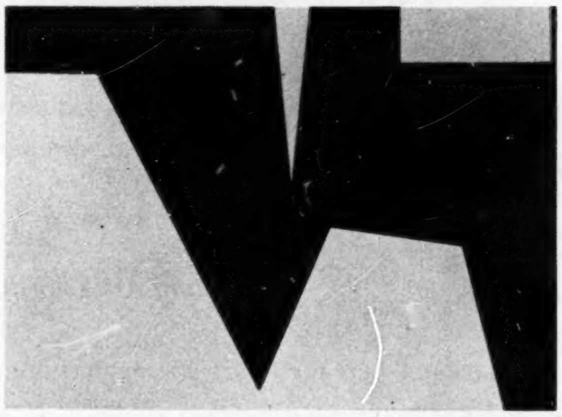

FIG. 22.—Cut paper collage by high school student.

The percentage of secondary schools reporting an increase in enrollment in art has increased to nearly 50 percent; but only about one school in six reports any increase in staff.

Less than half of junior high school students were enrolled in art, even in schools which offer art courses. But nearly half of the junior high schools (46.7 percent) do not offer art courses.

The size of school makes a notable difference in the art program—generally the larger the school the more comprehensive the program; the larger the percentage of students enrolled; the more likely the chance of a specialized and sequential curriculum; the greater the likelihood of adequately prepared teachers and of longer class periods.

The median expenditure for supplies per pupil in the secondary school is $3.72 per pupil (compared to $4.50 for music). In addition, over one-quarter of the schools charge an art materials fee. About one school in twelve spends over $10.00 per pupil and about one school in fifty spends over $25.00 per pupil.

The ratio of art courses added to the curriculum to those dropped from the curriculum is more than 10 to 1 in favor of the added courses.

Higher Education in the Arts

The number of bachelors degrees conferred in the arts, humanities and arts education was approximately equal to those conferred in mathematics, the physical sciences, and engineering; was higher than either the social sciences or the biological sciences and health professions, and is exceeded only by bachelors degrees in the combined fields of education other than the arts, library sciences and social work. At the masters level, however, four degrees are granted in the physical sciences to every three in the arts; and at the doctoral level over two and one half times as many degrees were granted in the physcial sciences as were granted in the arts and humanities.

Of the 72,207 bachelors degrees granted in the arts, humanities, and arts education in 1961-62 about one-third (25,100) were in art and music. The remaining two-thirds were in the humanities or in architecture. Of this 25,100, about one-quarter (2,269) were in art education.

Of 1,558 doctoral degrees granted in the arts, the humanities, and arts education, 15 were in art education; a ratio of about one in one-hundred. Out of all doctorates conferred, the ratio of art education degrees to all other was 1 to 761 (or about 13/100 of one percent).

Summary

The very existence of an Arts and Humanities Branch within the Office of Education is one piece of evidence which points to brighter things; the increasing availability of funds which can serve to support projects such as this seminar is another; and, at the highest governmental level, the presence of a White House Advisor on the Arts and legislation to provide for an Advisory Council on the Arts* is of significance. Museum attendance is increasing at a rapid rate, adult leisure time involvement in the arts is expanding, and the sale of paintings, prints, sculpture and art books, to individuals as well as private business interests is at an all-time high. It seems clear that large elements in society are far more receptive to the arts than are schools. The closing of this gap between the world of school art and of the world of the arts outside of the school is an obvious challenge.

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*Editor's Note: The National Council on the Arts, with Seminar participant Roger Stevens as Chairman, has now been established.

Kathryn Bloom, Director of the Arts and Humanities Branch of the United States Office of Education, reported:

> The Office of Education has been making increasing sums of money available to support research and developmental activities in the arts. We have had, since the Yale Seminar on Music Education was held, 31 proposals for research and developmental activities in music and 24 of those are in the process of being supported. We most recently signed a contract with the Juilliard School of Music for over $300,000 to improve the musical repertory in the schools. That will be a three year contract and we hope that it will fulfill a very needed and important function in making the finest kind of music materials available. From our point of view, hopefully, the New York University Art Education Seminar is a beginning of many other things that can happen in art education. We presently do have considerable funds for art education activities of various kinds, but nothing has happened yet which is similar in intent' to this particular meeting and we have high hopes that it will bring additional activities to which the office can lend financial and certainly moral support.

Dr. George Stoddard, Distinguished Professsor of Education at New York University, pointed out that:

> The average school year is only about one hundred and eighty days. In some states it is a little less than that. For schools that are operating on a full time basis, only about half the "working day" of the child is involved. In schools which are operating on split or half sessions, much less than the half of the working day of the child is involved. So, in a sense, in the case of full-session schools, you have ninety days of formal schooling, the equivalent of ninety working days. Now if you divide those ninety days by thirty children per class, you have about three days of instruction per child per year!
>
> The last analysis I saw indicated that the average amount of time spent by school pupils watching television was twenty-four hours per week. In that one

> medium you get as much impact on the school child as you get in formal schooling. Some people refer to the effects of the total out-of-school environment as being "anti-educative". Whatever English, for example, or art principles children may learn in school is often eroded by watching television and by the effects of less desirable home environments. If we can afford that much television, why can't we afford to extend the school day? We should try, as Dr. Zacharias implied, to bring all these things into some kind of structural framework.

But the presently low quality and limited range of art education is, as the foregoing statistics show, by no means attributable only to the failure of many schools to hire specially-trained art teachers, or to the severely limited art educational training of elementary school classroom teachers.

The problem of quality and scope in elementary and secondary school art education is, indeed, shown in its broadest contest to be historical, cultural sociological, psychological, philosophical, and, often, a matter of economics.

Art Education in Elementary Schools

In the opening session of the seminar, Professor Robert Iglehart, of the University of Michigan, read the following paper in which he expressed his view on the status of art education in elementary schools:

> As an authority on elementary art education, I am aware that I have much to be modest about. But my initial alarm at this assignment was eased somewhat by the fact that variations in current practices in art education are so extreme from region to region, school to school, and classroom to classroom, that a one-eyed man may be king. I may pass for an expert in a field without experts. I have been for many years involved in the preparation of art teachers whose careers I have tried to follow. I am a confirmed school-snooper; and I have dutifully attempted to keep abreast of the flood of professional literature.
>
> I suspect that most art teachers feel that it is at the elementary level that the art program most often approaches success. A good teacher in the right situation, with the necessary time and facilities, can carry on a program which meets her own standards, pleases parents and principals, and delights the children. When we see exhibitions of the art work of school systems it is the elementary grades which consistently steal the show—through energy, quantity, and charm. And although good elementary art teaching is not the rule, neither is it rare.

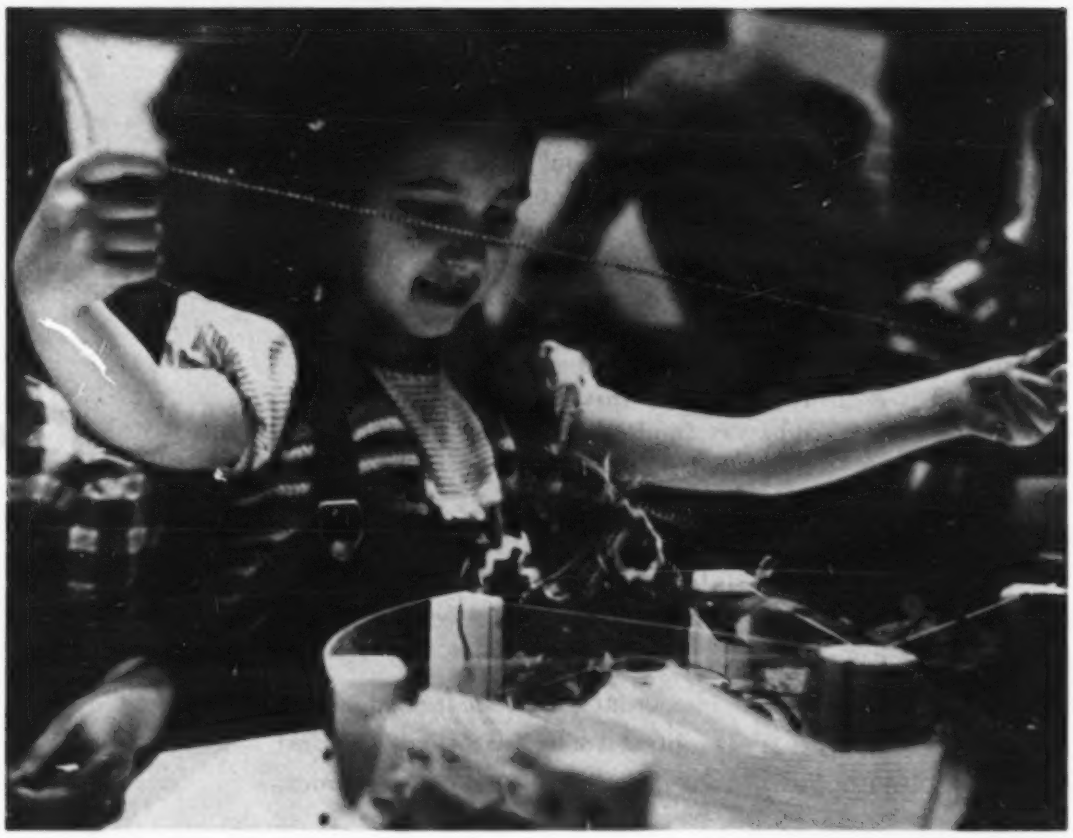

FIG. 23.—Child selecting materials from collage table at Children's Carnival of Modern Art. Courtesy Education Department. Museum of Modern Art, New York.

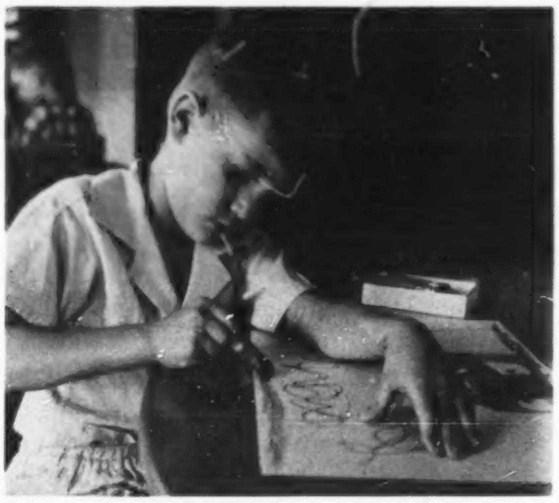

FIG. 24 —Kindergarten child, drawing. Courtesy Baltimore Public Schools.

This is not to say that the art teachers here—or anywhere—would express satisfaction. The general picture, although probably a little brighter than in the recent past, is one of inadequately prepared teachers foisting their misconceptions on children whose hours in art are not unhappy but unprofitable in terms of the real objectives of art education.

Our elementary programs have several conspicuous advantages over those of later school years. These are the years when almost every child in every school spends part of his time with paint, clay, and crayons. The elementary child is relatively free from external values, partly because he is so self-absorbed, partly because he does not constitute much of a market, and partly because his happiness is still seen as more important than his economic career. In other words, he is almost an artist by situation. A high-school child—especially a boy—who is drawn toward art, is an object of family concern. But an elementary child who takes enthusiastically to paint or clay receives general applause. No advisor worries about college admission; no mother trembles about the future; and no father despairs.

The nature, at this point, of the child's regard for his world, and his experience, has often been likened to that of the mature artist. He is able to focus on the particular; his eye is innocent; and he is fascinated with his manipulative powers and the self-extension they make possible. So equipped, a normal child, like an artist, can often flourish even in rocky soil. I have said that our most successful work is done at the elementary level; but perhaps it would be nearer the mark to say that this is where the children are doing the best job.

It is worth noting at least briefly, that the elementary school functions not only to educate the children, but also the parents. Millions of fathers and mothers, as a result of the work of the Panel on Educational Research and Development, are now learning set theory in order to help with homework in math; and the degree to which the validity and appeal of child art has been accepted by the public is impressive. Even if this acceptance is somewhat conditioned by factors apart from art, it remains interesting and suggestive.

What do we hope to accomplish at the elementary level? In our professional publications and textbooks we find a general concensus. We want to contribute to the child's creative growth, to his own realization of his powers to imagine, to make, and to judge. We hope to develop confidence in his ability to add something to his environment which will increase its pleasure and meaning. Finally, we hope to so stretch his sensibility of vision so that he will take greater delight in the visible world and in the works of art which celebrate it. The elementary art program is entirely a problem in general education; it should be accessible to all, and of value to all.

Our objectives, like the objectives in every other field of education, have veered and tacked over the past century. Latin was first taught as the language of clerics, then as the language of gentlemen, and finally as an aid to the understanding of English. Herbert Spencer insisted that every English boy should know astronomy because a maritime nation had constant need of navigators; he also insisted that geology was fundamental because otherwise boys would grow up to invest in coal mining operations under red sandstone. Teachers all have a strong tendency to erect their prejudices into principles, and to assume that the world is going to hell for lack of home economics or English composition.

FIG. 25.—Courtesy Baltimore Public Schools.

Our own fluctuating justifications are easy to consider because the history of art as a general subject is only about a century old. During the last half of the nineteenth century, two schools of thought seem to have had about equal influence, and to have accurately reflected the century's twin obsessions: utility and gentility. On the one hand it was argued that drawing would develop manual and visual skills needed in the new mechanical age, and on the other that it would spread refinement on a democratic basis.

Louis Bail, who worked in New Haven and taught for a time at Yale, prepared in 1868 a systematic course of study in drawing which must have, quite literally, made a factory of the classroom. "It is time to begin in the common schools," he writes, "to train the hand and eye of the child in such a manner that he will be prepared to become a skillful workman. We shall, in this way, rid mankind of a large class of loungers who have done little or nothing to increase the aggregate wealth of the world. Many of our people feel above labor, simply because they have not been able, except in the most mechanical sense, to use their minds in their work. Educate them to the ability to do brain work, and all thoughts of degradation cease. Artistic culture is, therefore, in its moral aspects, secondary to mechanical culture upon the democratic principle—the greatest good of the greatest number."

Bail's drawing charts provide a complete, and completely rigid, set of problems from first grade forward. The early years were entirely spent in drawing geometric figures: the paper must not be turned as the horizontal lines were drawn; and the pencil must be held so that its reverse end pointed toward the shoulder. Every child, following the chart or the teacher's blackboard example, performed each operation simultaneously. Directions were precise. One of the many "Drawing Manuals" which echoed Bail's ideas cautions the teacher: "All students, especially females, should sit upright: leaning the chest against the table is prejudicial to health and creates a habit of stooping." There could not have been much pleasure in these art factories but it is not easy to rid the world of loungers.

At almost the same time it was being urged that drawing was a key to culture and refinement. Democracy promised to make gentlemen and ladies of us all, and one of the many advantages of the upper class was its monopoly of gentility. Ladies did fancy work and sentimental watercolors; gentlemen knew the names of painters and could dabble in architecture. "Drawing," according to one writer, "is an accomplishment of no common magnitude among the many acquirements of the age."

In 1862, Daniel Huntington, who had studied with Samuel F. B. Morse during the latter's brief teaching career at New York University, wrote the preface to a *Manual of the Fine Arts*. The author of this work was a young lady too genteel to attach her name to a volume for public consumption. The book itself is a literary effusion which combines the worst in the styles of Mrs. Oliphant and Mrs. Jamieson. Huntington's preface sets the tone.

> "The man who is a true lover of the fine arts, is generally benevolent and cheerful, not seldom also is he a passionate admirer of nature, and often a devout worshipper of the great Author of all that is beautiful and good. The man who is a sensualist, who chooses his companions among dissolute and profligate men, whose chief care is that his table should be well furnished with delicious viands, whose eye lights up only when bottles and glasses begin to rattle, whose cheeks are streaked with the unnatural redness of high living, is rarely a lover of art—unless it be the art of cooking, or making punch. Neither does the miser care for sculpture or for painting. Your true money-lover despises the fine arts; he likes well enough to pass his grasping and shrivelled fingers over the stamped guinea, but the clearness of its relief, and the music of its ring, charm him only because they speak of full weight in the gold. And so it is with the treacherous, the cruel, the sly, and the crafty; their selfish and corrupt passions unfit them for the tranquil enjoyment of the arts, which are in their nature social, kindly, and purifying, inclining those who are much engaged in them to refined studies, to a generous frankness, a free importing to others of the pleasures enjoyed.

"The study of the fine arts having then an elevating and softening influence, a tendency to render man less sensual, more benevolent, more alive to the beauties of nature and truth, should be as generally cultivated as possible."

The drawing books which aimed at gentility through art were very different in their choice of subject matter. Whereas Louis Bail and his followers prescribed geometric figures or man-made objects such as tables, pails, and pumps; the prospective young ladies and gentlemen were set to copy old mills, thatched cottages, ruins, and windmills—what Tolstoi called "the arsenal of the poetic." There are many sheep in these pictures, but no cows, the cow being rightly regarded as not genteel.

These nineteenth century positions are worth mentioning only because their influence has not altogether disappeared. They do not occur as objectives in curricular materials, but the individual teacher often supposes that if the student paints within the lines of the hectograph drawing he is learning good work habits. I have heard a state art supervisor defend mechanical drawing because "it makes the boys neat." In many systems, particularly in rural areas, the art program proceeds from workbook to workbook, and the student colors the apple red—or, heaven help him, green. There is an extensive manufacture of tulips in the spring, and a serious over-production of turkeys at Thanksgiving. There remain also many teachers who feel that art has a refining influence and may elevate the soul as well as assist in the choice of draperies, neckties, and conversation.

In 1899, a report by a committee of the National Education Association urged that drawing be made a universal subject in order to permit children to express themselves, and this remained the dominant theme through the nineteen twenties and thirties. The argument has received broad support from psychologists, beginning with William James, and from the major educational philosophers. It continues to be an aspect of current thought in the field. In the forties the therapeutic effects of expression were emphasized by the late Viktor Lowenfeld in several important and influential books, and his position was sometimes misinterpreted by enthusiastic followers who regarded their classes as groups of out-patients.

By the early fifties, we had arrived generally at the position we hold today. Grossly over-simplified, this is that art in the elementary school provides a unique opportunity to provide for and to foster the creative impulse, to encourage expression, and to cultivate a sensitivity which will both enrich personal life and lead to responsible participation in the reconstruction of environment. This position has been reinforced by the

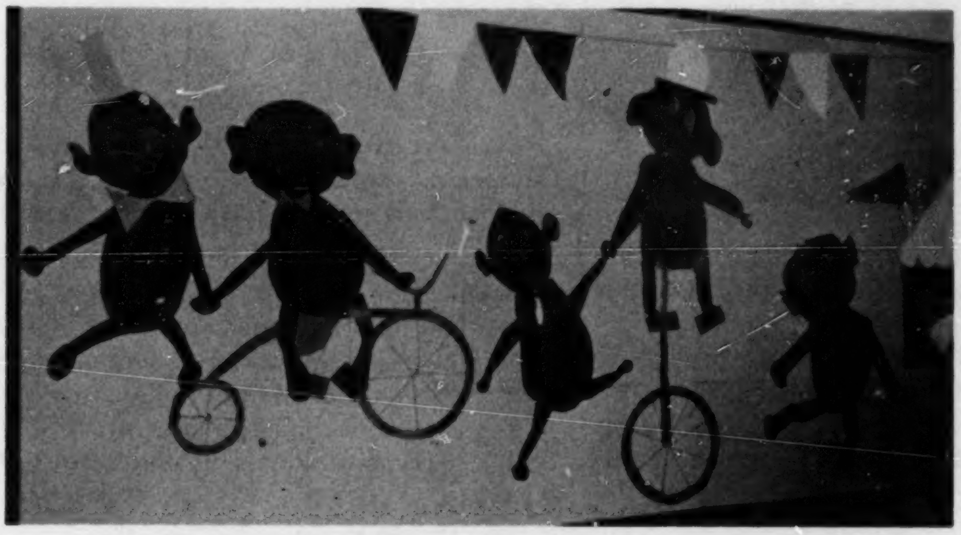

FIG. 26.—Circus monkeys, mural, by 1st-grade pupils. Courtesy Clear Stream School, Valley Stream, New York.

considerable body of psychological studies of creativity, although it cannot be claimed that the case is proven. I suspect that we are still rather in the position of an English proponent of private prayer in the schools. "It is true," he said, "that we cannot enforce private prayer, but we can at least provide an opportunity for it."

It will be seen that art is regarded both as a means and as an end. It is a means of providing problems and circumstances of such a scale and nature that children are able to create and to judge with some degree of success and satisfaction. Guilford, for example, indicates the following factors as indices of creative power; a) sensitivity to problems, b) fluency of ideas, c) flexibility, d) originality, e) ability to redefine, f) ability to analyze, g) ability to reach synthesis, and, h) ability to organize. It is perfectly true that these powers can be invoked in any classroom, but it is the peculiar virtue of the arts that there are no fixed answers; all situations are open, and solutions need not be judged by adult standards. Incidentally, the visual arts share these advantages with creative music, dance, and writing which, for some students, will provide a more satisfactory means.

It should be noted here that although studies of transfer of training largely discount the effects of drawing on neatness and manual skills, they tend to support the claims for a more general result. Apparently it is precisely such things as process which we can hope to generalize. Summing up the psychological findings of the last decades, Sir Cyril Burt writes, "It is obvious that—quite apart from definite sensory contents, movements, associations or ideas—vague and more complex methods and plans, often too elaborate to be expressed in words, may nevertheless be readily transferred to new situations. The clearest instances are those in which the learner consciously discovers the best mode of working for himself, and deliberately employs it in a similar yet novel task. . . . We can see now," he says, "that the specific associations and specific ideas may all be forgotten, and yet the general scheme, the emotional attitudes, and the broad ideals will still survive. In this sense," he adds, "it may indeed be better to have learnt and lost than never to have learnt at all."

The extension of sensitivity is, on the other hand, a terminal value. Through such an extension we hope to prepare the ground for a more perceptive and discriminating experience of life, including an awareness of the role of the artist and the contribution of the arts to the human community. If the school is a part of life and a microcosm of it, the arts have a role both as pervasive and as mysterious as their role in the world outside.

The part played by the teacher in establishing the climate for meaningful art activity is critical. Perhaps I am parochial in assuming that in a social studies or arithmetic class, even the worst teacher may accomplish something merely by conveying information. But the art teacher has very little information to convey, and it is only of value if it makes possible experiences of a particular kind and quality. I am sure that the members of this panel would agree that the general level of art teaching in our elementary classrooms is far below what is needed to accomplish our objectives, and that raising this level is the central issue.

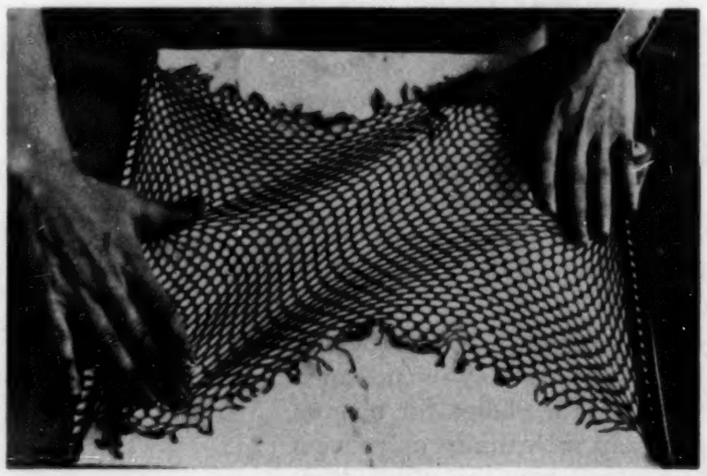

FIG. 27. — Art teacher demonstrates effect created by piece of stretched netting. Courtesy Project, Inc., Cambridge, Mass.

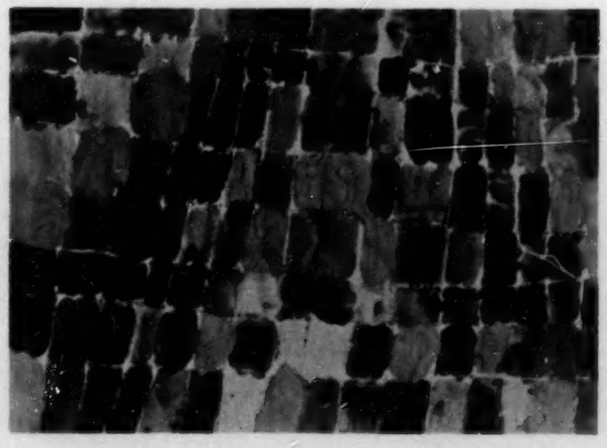

FIG. 28. — Seven-year old child's painting made in response to the stretched net lesson. Courtesy Project, Inc., Cambridge, Mass.

In the typical elementary classroom, as we know, all subjects are taught by the classroom teacher. She has had an education in teaching practices and some work in each of the fields she is to present. Her state certification board will require that she have the necessary college credit hours in these fields, including art. In the richer and more populous states she is required to take between two and eight credit hours of art, with the average closer to two than to eight. Her art courses usually consist of work with art materials and some theoretical discussion. Remember that if she is typical she has not had an elementary or secondary school art program of any seriousness: we would certainly regard her as better prepared in English, mathematics, or social studies as she enters college, than in art or music. In their college art classes these teachers-to-be are intelligent, willing, interested, and ill-prepared. The time is too short to do what needs to be done and no one realizes this with more clarity than the best of the students themselves.

Our typical elementary classroom teacher is uncertain and uncomfortable in her art program: if she is an especially conscientious teacher she has a sense of guilt. Lacking sufficient experience with materials, she tends to limit the materials available to the children: lacking ingenuity in the suggestion of projects she relies on stereotypes, and the classroom staggers from holiday to holiday in a round of witches, pumpkins, pine trees, rabbits, and tulips. In the absence of esthetic judgment, evaluation is likely to be based upon painting within the lines, copying skill, or following directions. It may well be that the elementary teacher's preparation for other fields of the curriculum is also inadequate, but she would agree that it is in any case better than her preparation in art.

We confront here, of course, the theory of the "self-contained classroom" which rests firmly on the myth of the self-contained teacher. We may one day have in every elementary classroom a teacher who is round, firm, and fully packed; but in the present imperfect world it remains a theory and a dream.

The classroom teacher has various sorts of assistance available to her. She may have an art specialist as a supervisor or consultant. In the atypical situation this works well; more normally the contact is too brief and infrequent to be of real effect. The supervisor has far too many teachers on her list, and the classroom teacher is too pressed by other matters to be sufficiently concerned with an area that does not seem to concern her typical principal.

The school system usually has a published curriculum in art. In the larger systems it is generally well-prepared and useful to a teacher who knows how to adapt its generalities to her immediate situation. But the more specific the curriculum the more rigid and self-defeating it becomes. It may call for projects requiring materials or facilities not available in many schools, or it may suggest a lesson in lettering on the day of the first snowfall. A good program of study in art—and there are more than a few—can be an important influence, but cannot be as effective in determining classroom procedures as a comparable program in science or math. I am presuming here, in my innocence, that these are relatively effective. In art education I think my colleagues would agree that the preparation of curricular materials is a relatively minor part of our problem.

In some few elementary systems the teaching of art is the province of specialists. And in still fewer systems does the specialist have the time or the facilities to do the best job of which he is capable. I do not know whether the opinion is general, but it is my observation that the preparation of special teachers of art has been markedly strengthened in the last decade. College work in art is more serious, and an increasing number of schools have abandoned the unfortunate division between art students and art education students, thus making it easier both to attract the gifted into a teaching career, and to jettison the inept with a minimum of tears and reproaches. However, as I have indicated, there are few jobs at the elementary level for specially prepared teachers of art, and the great majority of such graduates enter the secondary field, where their further adventures will be discussed by Professor Logan.

Beyond the question of the competence of the individual teacher, there is the problem which we share with other fields, of reforming the procedures by which new teachers make the transition from college to classroom responsibility. The general pattern is to require that one semester of the senior college year be spent in supervised practice-teaching. In my experience, the supervision is nominal, the situation one of happenstance, the time too brief, and the psychological climate unfortunate. As a serious step in professional orientation it is a sham. The model of what we need do is already established in the internship of a graduate in medicine; the schools must begin to take over this responsibility from the colleges, who cannot and should not exercise it. In other words the school should undertake, in relation to the graduate teacher, the role of the hospital in relation to the intern. The skills of a teacher can only be seriously developed in this period of initial experience, and we habitually waste it. There exist, of course, better present alternatives—Michigan State University arranges to have its students live in the communities where they serve as practice-teachers, and thus provides a much sounder introduction. I have said that this is a problem not peculiar to elementary art education, but it is of special interest to us because a genuinely professional period of internship would provide opportunity to strengthen competency in just such areas as art.

The physical circumstances in which the art program is carried on are no more standardized than the other factors discussed. A relatively small number of elementary schools provide a specially equipped room for art; in these cases the room is used by a specialist teacher, and the children come to her. In the overwhelming majority of schools the children work at art—and at all other subjects—in the more or less self-contained classroom. In newer schools these rooms are often well-planned, with the necessary types of equipment, facilities, and storage. In older schools, urban and rural, the classroom seems carefully calculated to discourage even the attempt at art activity. A dedicated teacher will rise triumphant over such adversity; the teacher of weaker impulse will be the victim—along with her class—of circumstance. In either case we must remember that if the same room is to be used for other, and inherently neater enterprises, there will be a tendency on the part of the teacher to keep creation within bounds, and hopefully off the floor and walls. In this tendency she is likely to be reinforced by the authority of the principal and the janitor. These attitudes, along with budgetary considerations, affect the kind and quantity of materials made available. Again, the variation here is extreme, but the balance would certainly be on the side of inadequacy.

Dr. Conant has suggested that I mention the use and availability of resource materials: films, slides, reproductions, etc. In the elementary situation slides and filmstrips are seldom practical because the room cannot be darkened. Films are generally shown to larger groups of students in the school auditorium. Reproductions are likely to be few in number and poorer still in quality. But although proper and sufficient material of this sort can contribute to the art program, its importance is in stimulating activity rather than in furthering "appreciation" as such or imparting information. I would myself prefer a live duck to a Picasso reproduction (if the choice arose) as a motivating influence for the third grade. The sort of materials which serve best are those which demand a response beyond appreciation; the world is full of them and a good teacher will find them. I am referring here to the elementary grades; the later years will have other needs.

I am aware that in most of the foregoing statement I have implied that we are more sinned against than sinning, but we have also been handicapped by our own shortcomings and confusions. In mentioning these particular transgressions of omission and commission—selected from a much longer list—I hope also to suggest areas of study and action.

Fig. 29. —Elementary school children on field trip.

Fig. 30. —Boys carving totem pole. Courtesy Cradle Beach Camp, Angola, New York.

1. We have not been able to present, to our colleagues or to the public, a clear statement of aims and procedures. Such a statement must be made not only in words but must also be implicit in the programs we carry on. This is a problem of self-education for the profession, and will require more influential journals and organizations as well as continuing research on the effects of the experiences art education provides in the early years of school.

So long as the classroom teacher is the critical figure in the program, we need to find ways of assisting her during her period of service. It is not realistic to assume that we can ever make her college preparation adequate, but supervisory techniques could be made far more effective, and workshops offered during the teachers' school day would contribute far more than any increase in college art study. Presently such workshops are offered haphazardly, often at hours calculated to attract only the martyrs among the elementary staff, and their quality is extremely uneven. In many instances the sponsor is a commercial art materials manufacturer whose interest, not always veiled, is to promote his own wares.

I do not think we have taken full advantage of our really remarkable access to the public eye and mind. The casual visitor to any good elementary school is likely to see more art than anything else. But even the special teacher of art seldom uses the techniques of educational exhibition—in which we are presumably expert—to show not only what has been done, but why it was attempted. That this is dramatically possible has been shown by Victor D'Amico's work at the Museum of Modern Art.

2. In my own view we have been too exclusively involved with the traditional materials of the artist and not enough concerned with vision and its discriminations. The *process* of art, the imaginative response to experience, the making, and the judging, are capable of wide generalization. Unless we are using this process in such a way as to suggest its validity in other areas, we can scarcely justify our contact with all the children. We must probably resign ourselves to the knowledge that only a minority of our sixth graders will ever make another painting; but they will all be seeing, responding, discriminating, and affecting their environment—and that of others. In discussing his major point in connection with general education, Whitehead writes, "What I mean is art and esthetic education; it is however art in such a general sense of the term that I hardly like to call it by that name. Art is a special example. What we want is to draw out habits of esthetic apprehension . . . any selection by which the concrete facts are so arranged as to elicit attention to particular values realisable by them."

If we are to make clear that art is a special example, we need to widen the range of our materials and situations. As a process art has to do not only with paintings and pots, but with "any new arrangements of concrete facts" which permits a particular quality of experience. We have certainly moved in this direction, but might go much farther. What might be put into words at a later level must, in the early grades, be implicit in our activities.

3. My third instance of transgression is related to the second, and can be stated briefly. I think we have been too exclusively concerned, at the upper elementary level, with personal expression. At this point the normal child is beginning to want contact with the larger world and its values. We cannot merely undertake to shelter him or to try to persuade him that he can set the world aright by his personal efforts. He needs to locate values in his fellows and in the community with which he can associate himself and from

> which he can draw strength. An effort in this direction again suggests a widening of the range of materials and problems, activities which refer beyond the classroom or the school, and involvement in collaborative enterprise. I suspect that a good many of us here would agree that the great esthetic problem of the present and the immediate future is that of creating an humane physical and visual environment. This is far more than an exercise in personal expression, and although it is not a problem for the elementary grades, it is a problem within our compass.

Additional comments on the status of art education in elementary schools were made by the following persons:

> *Charles Dorn:*
>
> The teacher attempting to conduct a creative experience fifteen minutes a day among five hours of experiences which are largely cumulative, logical, and more or less formally organized, has very little chance of really much affecting the overall aesthetic development of the child.
>
> *Frederick Logan:*
>
> The average elementary school classroom teacher's deprivation in cultural areas is more pronounced than it is in the sciences. Throughout her life, including her schooling, she has had almost no art background. But we should also realize that most classroom teachers want to improve their ability to teach art, and that many of them work diligently to do so. And, in spite of the discouraging tone of the statistics described by Dr. Hoffa, we should know that in many of the better school systems throughout the country, there have been, there are, and there always will be well-prepared special teachers of art who contribute richly to children's art education and significantly help classroom teachers to improve and extend classroom teacher-guided activities in art education.
>
> A great many schools are now training elementary school teachers in two major academic fields, not attempting to have them diversify in ten different areas in all of which they will be badly prepared. This is not uncommon and it is something of the liklihood for the future that you're bound to have an even greater diversity of specialized teachers in all academic fields.

> *Hale Woodruff:*
>
> No one person over a period of four years, no matter how hard they try, can prepare themselves adequately to teach English, arithmetic, history, geography, the language arts, music, art, and all of the other subjects. It is just impossible. It is too much to expect a classroom teacher to achieve meaningful preparation in all of these areas.
>
> *Robert Iglehart:*
>
> Even with an art professor who is a genius, a two-point art education methods course for elementary school classroom teachers cannot begin to be adequate.
>
> *Harlan Hoffa:*
>
> We all agree on the importance of having pupils inter-relate their learning experiences; but the self-contained classroom is an inadequate solution to the problem. It has, among other things, caused a general decline in the status of the arts in elementary education and has even resulted in the abolition of the position of elementary school art teacher in many school systems.

Art Education in Secondary Schools

Professor Frederick Logan, of the University of Wisconsin, expressed his views on the status of art education in secondary schools in the following paper:

> The American high school is a community in itself, often the only intellectual, cultural institution in the neighborhood of which it is a part. Its aspirations in 1964 are apt to mirror the aspirations of its environment, though city and state regulations will influence the quality of faculty and range of curriculum. As matters stand today, the imposed regulations are raising standards of art education and not acting as inhibiting agents.
>
> We are in a period when superior young people are not besieging school systems for teaching jobs, and as a result the lethargy or the alertness of school boards and school principals makes all the difference in the kind of staff hired, in the range of high school studies available, and particularly in the level of creative zest throughout the school. If football, basketball, band, and drum majorettes satisfy the school's appetite for drama, color, creative sparkle, and school pride, then faculty excellence and scholarship in all fields, including the arts, will not really count for much. Teachers will be hired for their

FIG. 31.—Junior high school pupils, painting. Courtesy Pittsburgh Public Schools.

ability to "handle" adolescents. Intellectual grasp of their work will be a side issue.

In high schools of the first class where a fine education is demanded by the neighborhood and has become traditional, most of the possible avenues of development are open to the student. The high schools in which sciences, the humanities, and the arts were already developed to a high level before the first James Conant report, are the schools in which we still have the best art programs.

High schools which were clearly inferior are in the midst of trying to develop science, mathematics, languages, and utilitarian English in a great rush—thereby slighting the arts and the humanistic studies of literature, music, writing, and history. Headlong overemphasis on the science-mathematics concentration has, in hundreds of schools, gone far beyond the suggestions of the James Conant studies.

At present art education in the high schools exists in a less favorable climate than we experienced in the years just before and just after World War II. Less than half of American high schools provide instruction in the visual and plastic arts. Secondary art education has an even more minimal impact than that generalization suggests, if we look at the average class schedules.

Most junior high students are required to take art for ninety to one hundred fifty hours during their first two years in school. There are many kinds of programs, some requiring children to do art work each week for all of the two years, and some concentrating on an art program for a single semester during which time the student may have art work for a part of each day. After the two junior high years, about ten per cent of the senior high student population will take further work in art on an elective basis. Teachers of senior high school art are unhappily aware that they seldom have superior male students in an art class. Guidance counselors stress the importance for boys of getting high grades in the "solid" subjects. Counselors, classroom teachers, and parents are often dubious about encouraging smart boys to take art evidently for fear they might be so foolish as to want to continue in some art livelihood. But on the other hand, girls of superior ability and background are frequently encouraged to fully develop their art interests.

It has proven absured to suggest, as James Conant does, that superior students will spare the time away from the rigorous academic demands, to take art and music as elective studies.*

If school, social, and family pressures do not rule out art electives, high school guidance officers often discourage students from taking these courses in addition to their usually heavy academic load.

There are thousands of splendid art programs in our secondary schools. In every state men and women are teaching who have an extensive education in art, whose activity in the visual and plastic arts has remained lively and capable of growth, and who have worked out distinctive patterns of art instruction for their schools.

Individual patterns of organization and instruction have been the greatest strength, often the most telling gesture on the part of art teachers in the cultural environment of their schools. There are many academic teachers who think of the art program as simply odd-ball, but the more lasting impression given by a good art teacher is that of assurance in evaluating his subject and creating his own methods of approach.

Inevitably, each art teacher then leaves himself wide open to criticism from art colleagues, a position he would avoid if he accepted a more standardized form of procedure. An art teacher teaches what he has been taught about art, and he teachers *as* he has been taught. He may have been indoctrinated in the Bauhaus approach to design, where experiment with media and communicability are both high priorities. Or he may have been conditioned by an extreme laizzez-faire studio approach with the master exerting a minimum of pressure and making known his aesthetic judgments in widely spaced grunts or enigmatic quips.

The teacher then, in organizing his own instruction, is never completely removed from the influences of his own student days. It will have taken him one to three years to feel a kind of security in dealing with high school students and in coping with school, community, and administrative demands. Meanwhile, he will have been adapting, pruning, changing, adding, to the teaching processes which he employs in classwork. None of the good art teachers in secondary schools can be so rootless in the arts as to feel impelled to move their whole establishment to a new location every time a new gold strike is reported in the art magazines, and as a consequence even very influential art teachers often appear behind the times to young student teachers fresh from their timely successes in the college studio. Not only does the secondary art teacher find it more difficult as the years go by to keep up emotionally and intellectually with recent changes in the art world, but he also recognizes that his students come to art with simple, naive desires to represent their vision of reality and to learn the techniques of the artist. The high school teacher's necessity for meeting his students where he finds them, and yet maintaining an open, receptive eye and mind for genuine new art forms, is not an esay requirement to meet. How he resolves the dilemma is clearly exhibited in what emerges in the work of his students.

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*Editor's Note: Several seminar participants cited the fact that lack of Carnegie unit credit for art on secondary school transcripts, and the concommitant unwillingness of many colleges to recognize high school art credits as a factor in determining admissions, has a deleterious effect upon enrollments in secondary school art courses.

Art teachers in the secondary schools teach drawing, and drawing can be observed which is obviously a dreary, dutiful performance preceding any really interesting work in painting, crafts, or sculpture. But more recent generations of teachers are at work for whom drawing is the very basis of vision; a vision of the world; a vision evolved through the creation of art forms.

Painting continues to be the magic word for high school art students and the almost complete acceptance of real artists' media for the senior high school, has made the interest in it even greater. Whether a teacher is setting his students at a 1910 still life, or encouraging classes to work with their own conception of pop art imagery or abstraction, the early encounters with painting are exciting in any high school group.

There exists a wide variation in what is taught of three-dimensional media. Ten years ago the majority of such work in high schools would have been in crafts, in ceramics, metal, textile, or leather. Now younger art teachers are more frequently emphasizing sculptural activity in as great a variety of media as they can assemble, and in as large a scale as classroom circumstances permit. Ceramic modeling, wood carving, wood fabrication, casting in ceramics and metal, and even some metal welding is being used sculpturally.

Printmaking too, has assumed greater importance,variety of media, larger scale of product in the curriculum of the better secondary school art studios. Work in woodcut and in serigraphy is most frequently seen as it is, in some ways, easier to provide for in an all-purpose art room.

Some high schools continue to make stagecraft and typographical design, particularly in the yearbook, important ele-

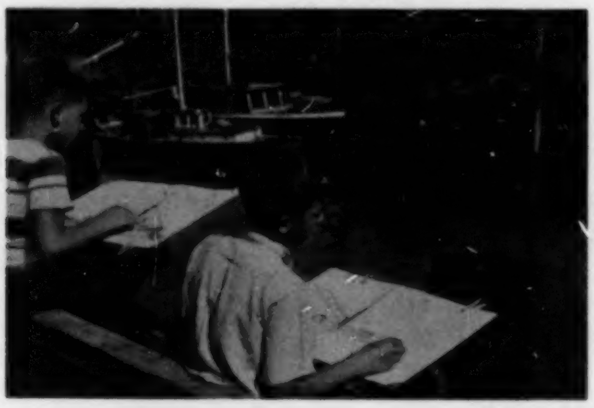

Fig. 32. —Junior high school pupils sketching outdoors. Courtesy Vancouver, B.C., Public Schools.

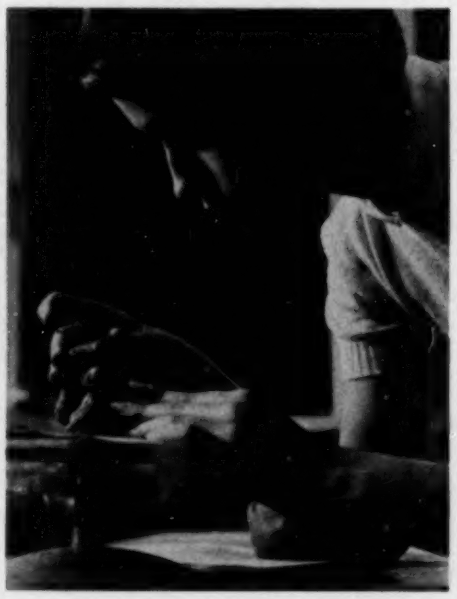

Fig. 33. —High school student working on ceramic sculpture. Courtesy Baltimore Public Schools. Photo by Jack Engeman.

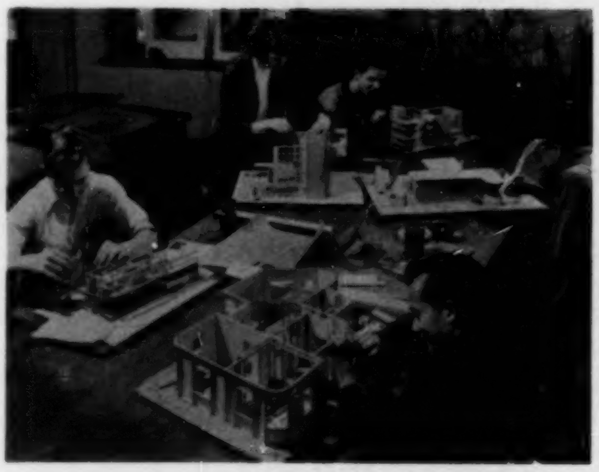

Fig. 34. —Senior high school students working on architectural models. Courtesy Pittsburgh Public Schools.

ments of the art offering, but this practice is, unfortunately, changing. Drama itself is dwindling in the time and material given to it. The yearbook, under commercial pressures, is being done as a completely packaged contract with no student art work, no student photography, lettering, or cover design. The books are slick, come out on time, the photos are clear, the profits predictable, the hair-raising delays caused by student participation are almost all over. The creative excitement is laid to rest.

Most art teachers, encouraged by decades of teacher training college precepts, have withdrawn from service activities such as poster making, dance decorations, place cards, parade float constructions, and so on. It is an understandable position. Art classes became primarily chore groups, hammering out dull, pedestrian projects visualized by the principal, by student committees, by drama coaches, by the art teachers; but seldom designed and carried through by the art students who did the work. It is deplorable that the art students are not in the forefront of such all-school "celebrations" to use Sr. Mary Corita's word, but they should do these projects only on the art department's creative terms. American high school life is less lively with creative energy in the arts than it was even a decade ago, perhaps because art teachers together with drama, music, and writing teachers, insist on withdrawing their energies from all-school programs which have become stereotyped and purified of the occasional crudities, poor taste, and even brutalities which crop up in genuine adolescent art expression.

In the secondary school art studio the curricular pattern may be a logical one leading from simple to complex experiences, and providing work in a thoughtfully varied sequence of art media. On the other hand, a teacher so inclined may improvise from month to month, depending on the clues he gets from his intuitive feelings about the accomplishments of each class. A large number of teachers maintain an open studio, personal choice of media and concept, for advanced classes relatively smaller in numbers. This approach is nearly always a success both in work produced and satisfaction to the student in the progress he is able to make.

There is the professional art world of the day, and there is the school world. For a while the young art teacher may try to feel closer to the art world, to keep the school world from closing in on him. Ideally, one wishes that all art teachers could be a part of both environments, but practically the teacher beyond the immediate confines of a few large cities has to rely upon books, slides, periodicals, motion pictures, and exhibits to keep up his awareness of what goes on in art. Materials of this sort are to be had in profusion compared with the situation in 1946, but their circulation and use are not satisfactory as yet.

Books are expensive but the majority of high school librarians welcome art requests. They would like to have a good art selection but art teachers generally do not order as many books as library funds would permit.

Art slides are widely and readily available for purchase (but vary tremendously in quality), yet most art teachers are not well equipped for ordering cataloging, using, and preserving them. Few libraries as yet see slide collections as part of their responsibility. Central visual aids collections are less useful because art teachers like to use visual materials as occasions

Fig. 35.—N.Y.U. Professor Howard Conant, discussing original Picasso pastel with high school students, as part of a research project in pre-college art history teaching.

arise, often on the spur of the moment. Too many schools have only one darkenable projection room, and only one or two projectors for the whole school. Because he uses, or should use, visual material as constantly as the history teacher uses books and maps, there is the need for equipping art rooms as visual education rooms with whatever equipment is needed, preferably including motion picture projection, but certainly equipment for slides, large color reproduction exhibit space, and opaque projection.

Art departments in junior and senior high schools can and should follow the lead already created by individual teachers in many parts of the country, in giving classes in appreciation of the contemporary and historical arts. Courses of this sort have always been given in a few cities, but frequently they have often been hampered by inadequate budgets for equipment and supplies as well as by overly-large class sizes.

We know from work now being done, that fine course content and excellent processes of study, discussion, lecture, and studio experiment are being combined by leading teachers in art appreciation; activities which challenge the interest of all kinds of students. No implication here is intended that studio courses are being supplanted. They are being paralleled by the new courses. Many art-interested students take both kinds of work, but the intellectually-interested person who finds himself responding to the aesthetic content of art in the appreciation class might not elect a studio course.

On the other hand, some art appreciation or art history courses are frightful. History is garbled, aesthetic philosophy is disjointed, and boredom overflows the class as the dutiful plodding from masterpiece to masterpiece goes on—often with color prints or slides that should have been destroyed years ago. But such malpractices are rapidly diminishing, and should not be allowed to discredit a growing and immensely promising development in high school art education.

New and better teaching materials are needed, and improved teacher preparation for the teaching of art history is essential. Acceptance of this kind of work has been generally very good on the part of administrators, parents, and guidance personnel. Of course, this is true mainly because the activity is more academic, more intellectual in nature, than studio classes. Art educators should be pleased with this positive response to their work. While we have reasons for believing that art values developed in the creation of a painting may have some transferral importance to other aspects of a student painter's existence, we at least know that it helps to describe aesthetic values in more than one context. The environment of American life at home, in school, on the streets and highways, has become aesthetically chaotic because so few people ever see it in this light. Art teachers are venturing beyond the school studio to encourage students to look discerningly at their environment, to look at paintings and sculpture, and to look at all that surrounds them. In this case secondary art education is ready to reach more people of greater ultimate vocational and professional diversity, with a little, at least, of the vision of the artist. This may be a most worthwhile venture upon which to expand.

In comparative quality, the art teacher of the nineteen-sixties may be among the best staff members of secondary schools. There are, in the university, college, and art school classes of the country, thousands of young people, of varying art ability, who do not want to do commercial art work. From this group come the majority of elementary and secondary school art teachers. Young people of equal quality interested in mathematics or the sciences, or in general business affairs, are eagerly bid for by agencies outside the school. The art graduate of ability finds the field of education the only bidder for his talent, outside of commercial art.

This circumstance becomes more evident every year and it has some disadvantages for art education. In a way, many art teachers rank too well with their teaching colleagues and in the community. Activity on professional committees in the school, and with community groups associated with school welfare, are excellent platforms from which to emphasize the value of the arts and art education, but by the act of joining these multiple interest groups, the teacher begins to need not two personalities—those of artist and teacher—but three, or even more. His excellence as an educated, creative individual is not disregarded or downgraded; rather, his qualities as teacher-artist are frequently so welcomed that he is over-exploited. And as no one individual can develop all the facets of his abilities equally, the art teacher needs to keep his growth in the arts as his first responsibility.

It is flattering to the young teacher to be accepted as a full-fledged contributor to school affairs outside his art classroom, and it is difficult for him to keep from doing more than his share of directing extra-curricula activities.

> One responsibility of art education is that of preparing the young art teacher to be so genuinely involved in his teaching and practice of the arts that he keeps other tasks at the periphery of his working days. He must be a creative teacher and artist who works with students, visualizes exhibition possibilities, keeps up work of his own in some art or craft. With these concerns as his first interest, his all-school contribution may be less in time spent, but greater in quality for his being above all else, a first-rate art teacher.
>
> The functioning of a good high school depends, of course, upon the presence of many staff members who have an abiding interest in the whole school, not merely in their own classroom affairs. But we have reached a stage in American secondary education where we must see that a superior high school can be realized only by recuriting and keeping a staff, the members of which are dedicated to their studies as well as to their students and to the total school program.
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> The young art teacher, in such an environment, would not be allowed to disappear from the arts into teaching. He would be encouraged, through his teaching, to emerge as a serious contributor to the arts and to the cultural development of his time.

Art Teacher Education

The status of art teacher education, as seen by Professor Edward Mattil, of Pennsylvania State University, and President of the National Art Education Association, was presented in the following paper:

> I would be less than honest if I pretended to be able to give a full, accurate, or unbiased report about the present condition of art teacher education. Like other fields of learning, art education has been part of a changing condition brought about by certain reconsiderations of points of view, by pressures within and without its field, and because of the influx of a new type of teacher who has entered the field in the post-war years. The quality range in art teacher preparation covers the entire value scale, with the bulk of the programs somewhere in the middle. I could describe programs so bad you might think I am talking about another century, programs which exist with one or two mediocre teachers attempting to be all things to all students, programs from which students emerge with notebooks filled with the most trite, stereotyped lesson plans which are imposed on children year after year.
>
> Rather, I would prefer to give you some understanding of the nature of the students who enter programs in terms of their prior preparation, and then describe some phases of current programs which are far more hopeful than might be

generally thought. In addition, I want to point out some of the factors which cause art teacher education programs to be what they are. There is no point in dealing with symptoms of trouble if we are unable to ascertain the sources or causes of them. We cannot change programs until we get at the basic reasons why they exist as they are; be they state school laws, philosophic viewpoints, teacher quality, financial support, certification requirements, or the like. Similarly, we cannot change programs without developing a desire for change in those who are the leaders, those who teach, and those who give financial support to education. There are no easy solutions to the problems that are certainly going to become apparent in these few days, but it is time now to tackle some of the multitude of problems dealing with the questions of "why", "to whom", "what", and "how we teach and learn in art". With present changing conditions, the "to whom" problem is of major importance.

First, let me show you what a student's program looks like who comes to a state university for an education. This student is far better academically off than the student of ten or more years ago. The pressures of numbers seeking admission have forced out those who might have slipped by a few years ago. The improved quality of secondary education is already showing itself in the preparation of these students. But, unlike the student of a few years ago who might have entered programs in art or art education, secondary school art courses are missing. Whereas a few years ago a student may have found time for at least one art elective per year, now none, or at most one, are posssible. Instead, his schedule is filled with mathematics, science, languages, etc. Bright students prepare themselves for every possible career except art. Those of you who are in architecture are facing exactly the same problem, for there is little university admissions concern about the creative ability of prospective architects, with rare exceptions. Rather the concern is with mathematics and science requirements. My viewpoint is probably naive, but I think of architects as artists first and engineers second. Yet, we are expected to provide a crash program in art and design in the few years we have with students at the university level. I would hate to think of the quality of mathematicians, scientists, and musicians we would produce if secondary school programs were negelected in these areas the way they are neglected in art.

In a recent study, *Music and Art in the Public Schools* conducted by the Research Division of the National Education Association, it was reported that "slightly more than half of secondary schools offer art instruction. More junior high schools offer art than do senior high schools. Only 53.8% of junior-senior high schools offer art. Of those schools offering art, the percentage of students enrolled is appalling low. For example, only 42% of children in grades 7-9 are enrolled in art classes *in those schools offering art.*

More than half of the formal instruction in elementary school art education where there is such instruction, is given by the elementary classroom teacher. Less than 10% of the formal instruction in elementary school art education is given by an art specialist. Only 31.8% of elementary schools require art educational training as a condition of employment for classroom teachers. Since some 60% of all formal art instruction at the elementary level is conducted by classroom teachers, the absence of art educational training as a condition of their employment places the art education of children in a dangerous position.

More than half, or 58.8%, of elementary school classroom teachers are having some kind of inservice training in art education to correct this obviously serious problem. Less than one in five secondary school art teachers is adequately prepared.

Now to turn to some of the specifics of art teacher preparation. As in medicine, law, engineering, etc., art educators are bound by certain requirements which license them to go about their work. There is a lot of argument about this since some of the world's greatest artists and scientists were rarely certified for teaching positions in public schools. We hear a great deal about this from people who want to staff the schools with artists instead of art educators. It is my honest opinion, that the really top notch artist has little interest, nor should he, in teaching school all day to elementary or secondary school children. Teaching is a jealous mistress just as art is a jealous wife. An artist wants to really work at his art and he should expect art teachers, to work with the same degree of skill and dedication. I am not suggesting that we don't do both to some extent, for in fact, good art teachers in our schools today *are* making a sincere effort to teach creatively and produce creative.*

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* Commenting further on this matter in a discussion group session, Dr. Mattil said,

I've followed the careers of many of our graduates. I would estimate that eighty per cent of them are engaged personally in some kind of creative production, either as painters or potters or jewelers or working as interior designers, and about fifty per cent of them are actively exhibiting. Many of are only exhibiting locally, but they do produce and exhibit, and are sending to shows and getting in. I think there are more people active as artists in the field of art education then perhaps many critics of art education realize. Most of them are not of course professional artists and believe me I would draw a sharp line of distinction between the professional artist and someone who is painting on weekends or a few hours at night. One is devoting his entire life to his art, the other one is doing this because he has drive but he has other kinds of drive coupled with it.

I think many of the better schools are turning out pretty capable young people after four years who are painting at a reasonably good level, and I think they're pretty well informed in terms of children and their development, and I think they're pretty well informed in terms of the methods and processes of education.

Fig. 36. — University art student creating welded steel sculpture.

We haven't really made significant studies, to my knowledge, to find if there is a real correlation between the teacher's creative production and his ability to stimulate creative production in children (except the self image of creative producers is higher than self image of non-producers).**

A description of the curriculum of a fairly typical American university art education department may indicate some of the causes of weaknesses in art teacher preparation. *Thirty-six* semester hours of art education courses, including art history, materials and media, plastic arts, graphic expression and one other medium of expression, forms the minimum requirements for art teacher certification. Many art teacher education institutions are preparing teachers at a minimum level. Such a minimal requirement would represent only about 1/4 of a student total four-year program. A minimum of *60 credit hours* in general or liberal arts education is usually required (including the sciences, social sciences and humanities). This requirement is based upon the belief that the teacher ought to have breadth as well as depth of knowledge. A minimum of

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** Also related to this topic was a comment by Robert Iglehart:
Perhaps just because an art teacher paints, sort of prejudices us in his favor and causes us to believe he might operate the same way (creatively and aesthetically) in a classroom situation. But believe me there are plenty of teachers who paint who are bad teachers and some of the ones who paint best are some of the worst in the classroom. I've seen this over and over again and there's no one-to-one relationship here.

18 credit hours is required in professional education, including the social foundations of education, educational psychology, human growth and development, materials of instruction, and student teaching. These two blocks absorb about 78 credit hours out of a total of about 130 which, with the 36 hours required in art, totals 114 out of 130. We need one or two courses in art education for an understanding of the philosophy of art teaching, teaching methods and materials, the creative development of children, etc., so we are up to 120. If the university throws in a few requirements like public speaking, or physical education, you are over the maximum, and still have only a partially prepared teacher.

Some of us have been able to adjust the situation a bit to improve our condition; for example, why not turn the physical science electives into a course in the science of ceramics taught by a scientist from the mineral science department; or why not have the science of color, taught by a physicist; or why not have human anatomy as a life science taught by a physiologist? Also, out of the block assigned to general education, may come courses in art history, theater, and music.

Most undergraduate art education programs attempt to "do everything" because the system as it presently exists, expects great diversification from the art teacher. Many art teachers' first teaching assignments cover grades 1-12 (in small school systems); grades 7-9 or 9-12 in larger school systems; or a single specialized area in large school systems. The prospective art teacher is usually given a taste of everything: drawing, painting, printmaking, sculpture, design, ceramics, crafts, etc., plus some foundation courses in art history. Most programs are moving toward greater depth in one or two areas in an effort to avoid dilettantism. But it is a struggle to get both depth and diversification, and this is a point worth discussion and thought. It is my personal opinion that art education programs on the whole have cut away most of the "fat" from their programs, elimimating inadequate methods courses which were for the most part pretty bad busy work courses taught by people only vaguely connected with art. The methods courses which are presently being taught are based upon a pretty broad body of information about teaching and learning in art, creative development, and research. There has been a strong move away from the so-called teachers college toward becoming colleges of liberal arts, in which teacher preparation still plays a large part. The first part of this movement is merely a name change but ensuing actions lead me to believe that some liberalizing will take place with time and that courses of greater depth and richer content will be developed.

I frankly don't expect any miracles, for if you have tried to hire a competent young art historian lately or a trained art

> education researcher, you know how difficult it is to find them. It is precisely the same story as getting artists into the classrooms as art educators. Really good ones are at a premium, and bad ones you don't want. It is a simple arithmetical fact that there are not enough good art teachers to take care of today's needs and we are not preparing enough for the future.

Additional expressions of opinion on art teacher education were offered by the following participants:

> *Charles Dorn:*
>
> If an excellent, bright, and "involved" art teacher cannot work in an environment where he can sustain the kind of deep involvement to which he is accustomed, he is not going to remain in it. Half of the teachers we train in this country change schools or leave teaching after one year.

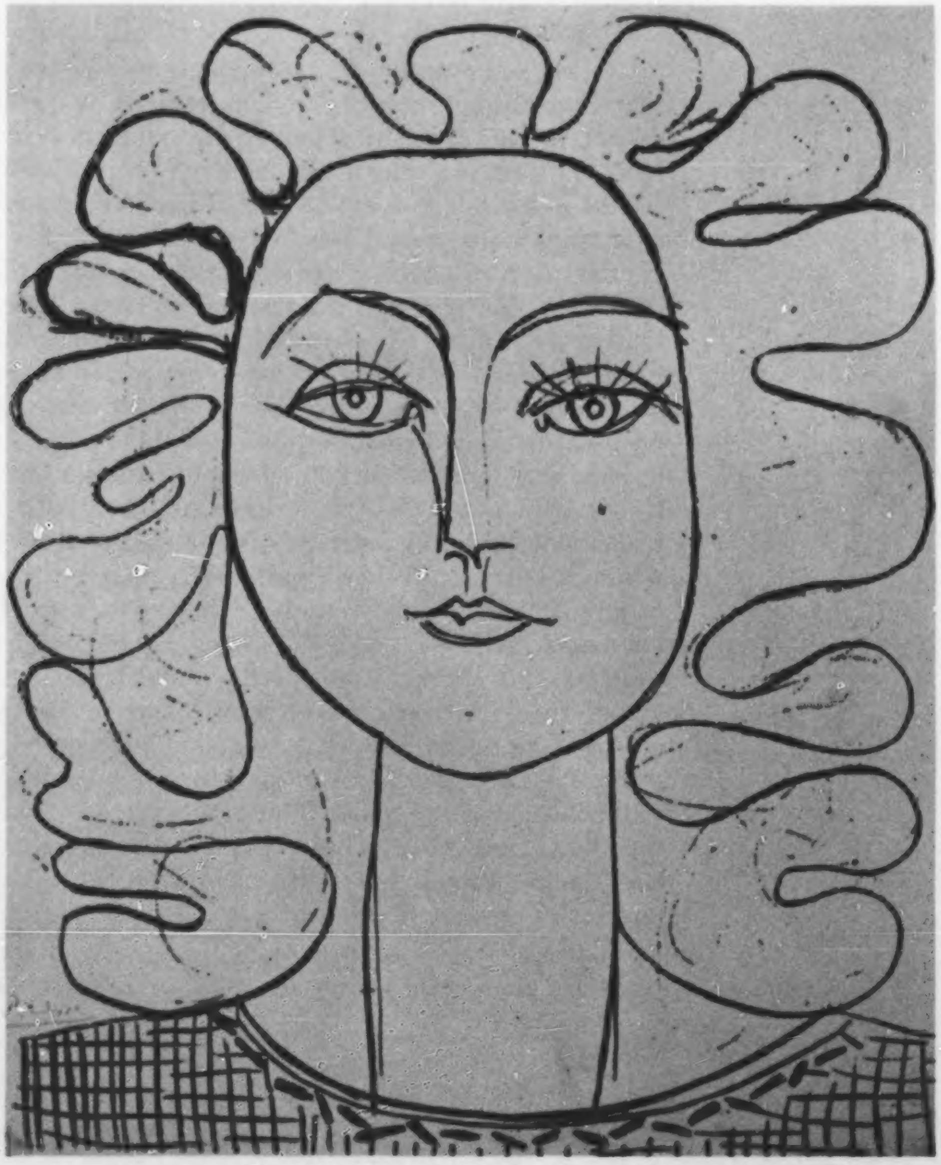

FIG. 37.—*Head of Girl*, 1946, lithograph, 26 x 19 1/2", by Pablo Picasso. Private collection.

Robert Goldwater:

Bauhaus teaching practices are now being used in much the same way as students were once urged to make copies of art masterpieces. The vitality of personal insight has, in many cases, degenerated into a series of mechanical exercises with an attendant loss of freshness and stimulation of individual problem-solving.

There are, incidentally, many elementary and secondary school art teachers who are not frustrated artists, who really want to teach.

Robert Motherwell:

In art education, the blind are leading the blind, from the top down. Most art teachers know nothing about modern art. Most art teachers are really quite illiterate. The subject matter is modern art—in any creative epoch!

There is a very deep alienation of art educators, including university art teachers from the principal works of art of modern times. I think there's a real alienation from such artists as Picasso, Matisse, and Brancusi.

Most art teachers are really miserable people because they do not feel what's magical and moving and alive about art. When I hear about what art teachers don't know, and hear about the inadequacies of art education, all the horror of living on the fringe of American culture comes back to me.

From the standpoint of making a picture or responding to it, most of what's talked about is so generalized that it is meaningless and has very little to do with the magic of a picture or a sculpture.

Howard Conant:

The six college credits of art history taken by most teachers of art are completely inadequate for even minimal preparation in this vast and complex field. But even these two or three undergraduate courses in the history of art are usually historically, rather than aesthetically-oriented,* hence, art teachers' understanding of art as art is practically nil.

One must also realize that the "general education" courses taken by most art education majors are watered-down versions of true liberal arts subjects; that most art teaching 'methods' courses are outmoded, philosophi-

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*. . . Jerrold Zacharias voiced his belief that most art history courses are "not alive, are uncreative, are accession number-oriented, and do not capture the imagination of students."

> cally-vacuous, and gimmick-oriented; that pseudo-theorist textbook authors' works are more often used than are the writing of outstanding scholars of art and education; that art teacher education students are seldom helped to differentiate the opinions of popular magazine and newspaper journalists from those of responsible art critics; and that the attainment of a high level of quality in the personal artistic expressions of art education students is extremely rare because the time devoted to studio courses is often inadequate and their instructors are either less-than-well-qualified or regard art education students as 'second class citizens' in the arts. Indeed in some colleges and art schools, art education students are still put in special (actually, lower standard) sections for studio course instruction.
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> *Percival Goodman:*
>
> I must honestly say that I find suspect the notion that art can be taught to children by persons who are not professionals in their field. I find suspect the idea that one can specialize in teaching a subject without being able to practice it personally.

Commenting on his personal observations of art education students in studio classes, Harold Rosenberg stated:

> They were turning out individual variations on contemporary styles in studios that were very well equipped for welding and all the current kinds of work that are being done. But practically nobody had any idea of what it was all about. There was a selection of style made on a fashionable basis, on what's being done now. Following the big show at the Museum of Modern Art on assemblage, all over the west they were making assemblages.

General Comments on Art Education

The following comments relate to art education programs at all levels:

> *Christopher Alexander:*
>
> Just what should be taught is far from clear. Many of the assumptions currently being made about what is worth teaching in art seem to me to be dangerous, if not downright wrong!

Robert Osborn:

There seems to be a lack of a real conceptual basis underlying what the teacher does. Too many of them rely upon "rapid response" and impressive-to-administrators-and-parents projects such as fake metal castings, fill-in drawings, copies of the works of professionals, copper "tooling", variations on Calder's mobiles, pseudo-Mondrians, and endless variations upon, but qualitatively very different from, other valid and significant modes of art expression.

I deplore the lack of imagination, the lack of the freedom, the puritanical nature of much art education. I deplore the practice of making everyone do the same thing and often at the same time. Art education should be something quite different: it should in certain ways be poetic, rhythmic, mysterious, and mystical. If it were, fewer people would be going around wearing aesthetic "blinders".

I don't think we have to worry too much about the development of artists. They are like skunk cabbages: you can stamp on them or cut them off, but they'll come right back up again! But we would like to have all children at least be exposed to the kind of force inherent in the creative processes.

Harold Rosenberg:

Nearly everybody in this country, for the last thirty years, has been filled with the notion that you start with activity, that you learn by *doing.* The first idea that occurred was, let's get some stuff and start doing something! To my mind the important thing that's missing, is familiarity with certain kinds of experience. If you read, let's say, *Remembrance of Things Past,* you find that Proust, as a young child, found himself surrounded by theater, by poetry, by painting. It was just absolutely something that he took for granted as a part of daily life. Now what would prevent kids, I'm talking now about six-year olds, from having these kinds of experiences?

The art teacher should have a very good knowledge of modern art, very contemporary art, and have a sense, first of all, which is a thing I think we all missed in school, that art is being created *now* by people on *your* block or people in *your* neighborhood, or at least in *your* country. One thing I thought to be true when I was a kid, was that poetry was written in the nineteenth century, by Englishmen with beards, and that painting was done by artists such as Rembrandt. The big thing in America today is that artists are able to say, "Well here I am, and art is here."

Friedel Dzubas:

I wouldn't call a park bench a piece of art. I don't think that art is made in that way. I don't think it's possible to make art in that way. I don't think that art is that predictable. I don't think that art is an aesthetic utility. It never was and I hope it never will be. For me this concept is anti-art. I could not possibly relate what I feel about art to utilitarian objects or to many of the elements of art education programs in schools today. I could not bring my own concepts, my own feelings, about what I think young people should be made aware of in art, into harmony with what I know of art education today. In many ways I feel we just don't have a mutual vocabulary.

Sister Corita:

Whatever we talk about in art education usually comes back to the particular people that sponsor it. We must take very seriously what the masters, so to speak, are doing around us, and we must try somehow to get children in contact with them. Perhaps children can't come into artists' studios to learn how to paint, but at least we can listen to them when they're available, we can see the things they do, or we can read the things they write, and we can, if we wish, fight about the things they say and thus get into as close contact with them as possible without just running into their houses.

Art teachers' not knowing exactly what they're doing may be similar in a positive way to the kind of desperation artists face in not knowing exactly where they are going. And, in reference to classroom teachers, if they are doing a good job, they can, in a sense, teach art all day.

Henry Hope:

There appears to be a lingering notion that art education should be regarded as a type of therapy. There is too much emphasis upon "let's do whatever you want to do, and have fun!"

Sister Jacqueline:

I feel terribly a new kind of orthodoxy which could kill art education. If we merely get a new strait jacket for an old strait jacket, we're caught again! What we really need is a brand-new and flexible framework through which we can experiment and upon which we can build.

Noel McKinnell:

It seems to me that art is the end product of a feeling, of the excitement of making something. It doesn't seem to me that art education has very much to do with this type of end product. Art education has to do with allowing more people to share the kind of experience that you have when you're making a painting. This seems to me to be vital to the whole idea of art education. Very few people are going to be painters. You can widen their horizons, but I would venture to say only while you're present. When they leave you their horizons are again limited, they're contracted again. I believe that this feeling, this excitement, whatever it is, can only be experienced in making something, and if people don't make anything, I don't care how good their taste is, I don't care how good their receptivity is to art. More people see more paintings today than ever before in the history of mankind. We're probably overexposed, if that's conceivable, to painting in a passive sense. We need to find a means by which the majority of people can actively experience the genuine quality of art.

The problem is not so great at the elementary level. Elementary school children find a natural expression in what we term fine art, but children at the secondary level and the vast majority of adults do not find this as a natural form of expression.

Howard Conant:

Art curricula at all levels are too fragmented. There is altogether too little singleness of purpose in emphasizing the superb quality of art expression coupled with a thorough study of professional examples at both the elementary and secondary school levels. The quality of instruction, and the time allocated to art, are completely inadequate if the goals of art education, as outlined elsewhere in this report, are to be realized.

Among many factors contributing to the abovementioned weaknesses in contemporary art education are ridiculous schedules in which art instruction is programmed for forty-five to fifty minutes per week, with the expectation that each 'lesson' will produce exhibitable or take-home works, prohibiting the development of thoughtfully-conceived projects which require several 'periods,' or a number of weeks, of work.

> Too much emphasis is placed upon loosely guided art expression, and too little stress is given to skillfully-guided, aesthetically-oriented creative expression and to the development of pupils' understanding of works of art produced by professional artists.

> *Edward Mattil:*
>
> I shudder when people think they know the answers to what art is and how art should be taught. I would really be petrified if someone really defined art education and started prescribing precisely what can and should be done. I sincerely believe that this is a diverse field, and what is art to you may not be art to me, and what is art in Africa certainly may not be art in Australia, or in the Antarctic, or in the Arctic. I think we must allow people the privilege of making their own interpretations of what art is to them and to express themselves through art as they see fit. I am not an aesthestician, and I am not a therapist; but I am distressed when I hear people get panicked and say, "Let's rid the schools of art as therapy." I would like to know precisely what people mean by "art as therapy." I was amazed to find people making presentations as though they had discovered something new in art education. Thirty or forty years ago in art education we were doing exactly the same thing with these and different materials and I would venture a guess that, if I could take you into Mrs. Churchill's classes, or Sister Corita's, that all the things that people have been talking about in this seminar were made by others a long time ago in art education. I'm amazed to find people who have so little knowledge about what art education really is in the schools, and what efforts have been made. I'm greatly distressed by dismissing people like Lowenfeld with the rash statement that he was a therapist. If you have ever read his statement about the meaning of aesthetic criteria, you would know it's one of the most profound statements in art education that has ever been written. He was a man who was deeply involved in the aesthetics of art, who was a painter himself, and was an accomplished teacher.

With reference to the evaluation of individual achievement in the arts, Jerrold Zacharias complained:

> We give examinations that try to discover what a student does not know. We have not yet found a way to make examinations which disclose what a person *does* know, and can use, and can work with, and can enjoy.

Rita DeLisi expressed a strong belief that prevailing evaluative practices of pupil growth are often wrongly based on numerical or other grades which inadequately measure pupil growth, and felt that these practices often negatively affect the type and quality of instruction offered by teachers.

Sister Jacqueline felt that pupils who posses the deepest conceptual insights might well be the very ones who would fail objective tests.

> *Zelda Dana Wirtschafter* said that:
>
> Very little has been done in helping children to see and understand architectural structure in terms of form and function; to see, for example, why a bridge "holds up." I've seen my own pupils become frustrated in trying to build a bridge, and I really didn't know how to help them. I think experiences in this area are very important to children, and they are natural to them as well.

A PLEA AND AN ARGUMENT FOR STIMULATING CREATIVE ART EDUCATION IN OUR SCHOOLS

> *Victor D'Amico:*
>
> It is most gratifying and heartening that distinguished members of the Office of Science and Technology of the Executive Office are concerned with the condition of art education in the United States. It seems even more impressive and hopeful when we are told that this concern is shared by the President. Art has always been regarded as less important than other subjects and the term applied to it, "a fad and a frill," is commonly known. In any crisis when the school subjects are evaluted for political, economic or social reasons, the Arts are the first to be curtailed or eliminated from the curriculum. This was true in the periods of the First and Second World Wars and during the Depression.
>
> The twentieth century is distinguished as the age of science and invention and in the world of education it has been called the Century of The Child. In art education it is perhaps the most distinguished era, for it is the Century of The Creative Child. The great leaders, Froebel, Cizek, Dewey, have established both a philosophy and methodology of creative education. For the first time the child was recognized as an individual and an artist in his own right. Since their time other leaders have extended the philosophy of creative teaching and have developed new and more effective methods. With new explorations and research better ideas and more

effective techniques of teaching will be developed, but there is enough known about creative teaching today to assure every child in the United States sound and enriching growth.

The Condition of Art Education in Our Schools

One might assume that with the great strides made in art education and the "know-how" accumulated, the arts in our schools would be healthy and flourishing. Unfortunately this is not the case. A great number of schools, too many in fact, carry on methods that are either too indoctrinary or too laissez faire. For example, many schools use coloring books or copying devices as art, while others believe in a completely unguided situation where the child is given art materials but left without benefit of an experienced art teacher. These are some of the obvious examples of the unhappy state of art education in the schools, but the real reasons and problems underlying this condition are less obvious. We cannot at this time discover, or even discuss all of them, but I would like to submit for your consideration and perhaps amazement the most serious and destructive problems with some recommendations for their solution.

The Attitude of the General Educator and the Public

The first problem is the attitude of the general educator (the Superintendant, the Principal or Headmaster). Many educators, I fear, still harbor the feeling that art is a secondary subject, or even a fad or a frill. The principal still exists who would curtail or even eliminate art because it leaves clay footprints on the floors and paint smudges on the furniture. This may not seem too serious unless one realizes that a principal is regent in his school and has power of life or death over each subject in the curriculum.

The average adult, the lay person, or whatever you wish to call him, may also consider the arts as less important than other things. But he constitutes the majority in most communities and determines the fate of art in the school curriculum, a new park or a civic improvement, by the power of his majority vote. The remedy to both conditions is, of course, through education, of both the principal and the lay person, but there must be more immediate and effective means possible if the arts are to prosper in our time. For example, if a statement on the importance of the arts to both the individual and the comunity were made by a person of high authority, by the President of the United States, the condition of art would be improved almost instantaneously. This would provide a positive and stimulating foundation for a more extensive program of education. It is not begging the question or making unreasonable requests. General educators have established the objective of a well balanced personality for over a quarter of a century, and art is an essential of that aim. Psychologists have developed a science of art therapy, and art in the schools can become a preventive to the need for therapy. Can the ideal of a "great society" be really great without the arts or creatively developed people?

The Preparation of the Art Teacher and the Grade Teacher

A second problem basic to the development of creative education is the preparation of the art teacher. This may lead us to the often asked question, "What is a good art teacher?" I believe that a "good" art teacher should have three knowledges; a knowledge of the creative needs and interests of the age level he teaches, a knowledge of creative methods and techniques of teaching art and a knowledge of the arts, both past and present. Many colleges and universities are long on creative pedagogy and short on creative experience. Some are torn between the desire to produce professional artists and the need to produce efficient teachers. Still others bear heavily on the history of art but are oblivious to the development of aesthetic insights. The establishment of a basic curriculum for the preparation of an art teacher would go a long way toward solving the confusion existing in education and eliminating obsolete methods and destructive practices.

There is another aspect of the problem, the teachers who are now teaching and have been for many years. Although both art and teaching have changed, they have not. They remain at the stage when they graduated from their respective colleges, often a rather remote distance in time. For these, refresher training should be provided in the form of seminars and workshops so as to upgrade the quality of their contribution. The grade teacher presents a particular problem because in a large number of schools he is the art teacher, with or often without the benefit of an experienced specialist in the arts. For him also, seminars, workshops and research clinics should be provided.

The Preparation and Provision of Visual Materials

The art experience is fundamentally a visual experience. Unless the image the child receives imparts a reasonable amount of the aesthetic quality of the original, he is not only denied the value inherent in the work of art, but he may be conditioned by a mediocre sense of appreciation. Modern photo mechanical processes and techniques make it possible for schools to have visual aids of excellent quality. We can, by color reproductions, photographs, slides, etc., not only enrich the art experience vastly, but we can even circumvent the inept teacher, or overcome an undistinguished environment. There are thousands of towns and villages which do not have the museums or galleries enjoyed by larger cities. They often lack aesthetic quality in their civic or home architecture. There is no town or neighborhood planning and the art class is the only opportunity for aesthetic enlightenment. This is sometimes true of children in large cities, for there are children in The Bronx or Brooklyn who have never visited a museum in their borough, or in Manhattan. This is an area worthy of the attention of art educators and a cause for which government subsidies and foundation grants would be well invested.

The Problems of the Mass Media

While we would all prefer the guidance of a well-prepared art teacher to any other means of education, the contribution of the mass media; television, films, radio, should not be underestimated. The fact that television has so much authority with children and spellbinds them for hours on end is sufficient reason for us to regard it seriously and capitalize on its influence. Television can greatly enrich both the creative and appreciative experience. It can extend the art teachers' objectives and give an added dimension to the creative art. The fact that most children's television programs are poor and that educational television is not much better, cannot be blamed on the set or the technique. The motion picture has the same advantages as television but it has the added advantage of permitting better planning, photography and editing. I see no more effective and faster way of producing a wide change in both the concepts and techniques of art education than through the skillful use of the miracle of the mass media.

The Problem of Integrating and Extending the Arts

There is still a hierarchy of the arts both in the public mind and in the field of art education. Not only does the notion still persist that painting and sculpture and sometimes architecture (the classical triumvirate called the "fine arts") are superior to all other arts, but for many teachers as well as children these constitute the only arts.

What is the ultimate aim of educating children through art? Not the producing of professional artists, collectors, or aesthetes, but the developing of sensitive and aware individuals who will be interested in their own growth, in the expressions and growth of their fellow man (black, white or gray) and in the improvement of their environment for the creation of a better, more human society.

If we subscribe to this aim, and I do, then art education should embrace all the arts from architecture to photography. These disciplines should not be regarded as separate entities but as means for all kinds of creative expression. The art curriculum should be structured to focus on a broad concept of art, an environment which includes city or neighborhood planning, architecture in the form of public and industrial building and homes, landscape architecture in the form of parks and private gardens, sculpture and painting as an integral part of architecture, the environmental plan, furniture and crafts as aesthetic as well as functional implements of living, clothing and jewelry as personal aesthetic enhancement. But these should be keyed to the individual, to his needs and interests, as the hub of a wheel from which these expressions radiate. While such a plan might provide the general direction for art education, the curricula for each stage or age level should be developed and implemented by teachers experienced in the particular age level. Rather than continue with the concept of particular courses such as painting, sculpture, etc., which in their aggregate produce a whole, it would be more effective to establish foundation exploratory courses or workshops made up of two and three dimensional experiences which would lead to more specialized explorations at a higher level of learning and of the individual's own choice.

The Potential and Fulfillment

There is very little that is new or revealing in my contribution. Most of it, or all of it has been known by art educators and artists. I have tried to give it a structure relating to the need for a more vital and effective education. What is new and even exciting is that through the efforts of this conference and perhaps subsequent efforts, many of these concepts and techniques may be put into practice on a wide enough scale to enhance the art education of children throughout the United States and perhaps the world. That will not only be gratifying but revolutionary, because theorizing and verbalizing in education are easy and often fruitless. Only action, timely and extensive, will solve the problem of creative teaching in our schools today.

Art Rooms, Supplies and Equipment

Percival Goodman deplored the lack of specialized art facilities in most elementary and in many secondary schools. He indicated that an "atelier", workshop, or studio facility is imperative for art instruction at all educational levels, and felt that the substitution of anything less invites compromise. He agreed with Robert Osborn in decrying the Calvinistic attitudes of "cleanliness and decency" held by many school administrators and custodians who prefer a neat and clean school to one in which often-messy creative art activities are carried on. He heartily endorsed the arrangement described by Angiola Churchill in which salaried maids (or volunteer helpers) serve as aides to the art teacher in distributing art supplies and assisting in clean-up activities.

Robert Iglehart deplored the fact that many elementary school art and classroom teachers are forced, because art rooms are unavailable, to have pupils work on "18 x 20" desk tops which inhibit their creative expression,

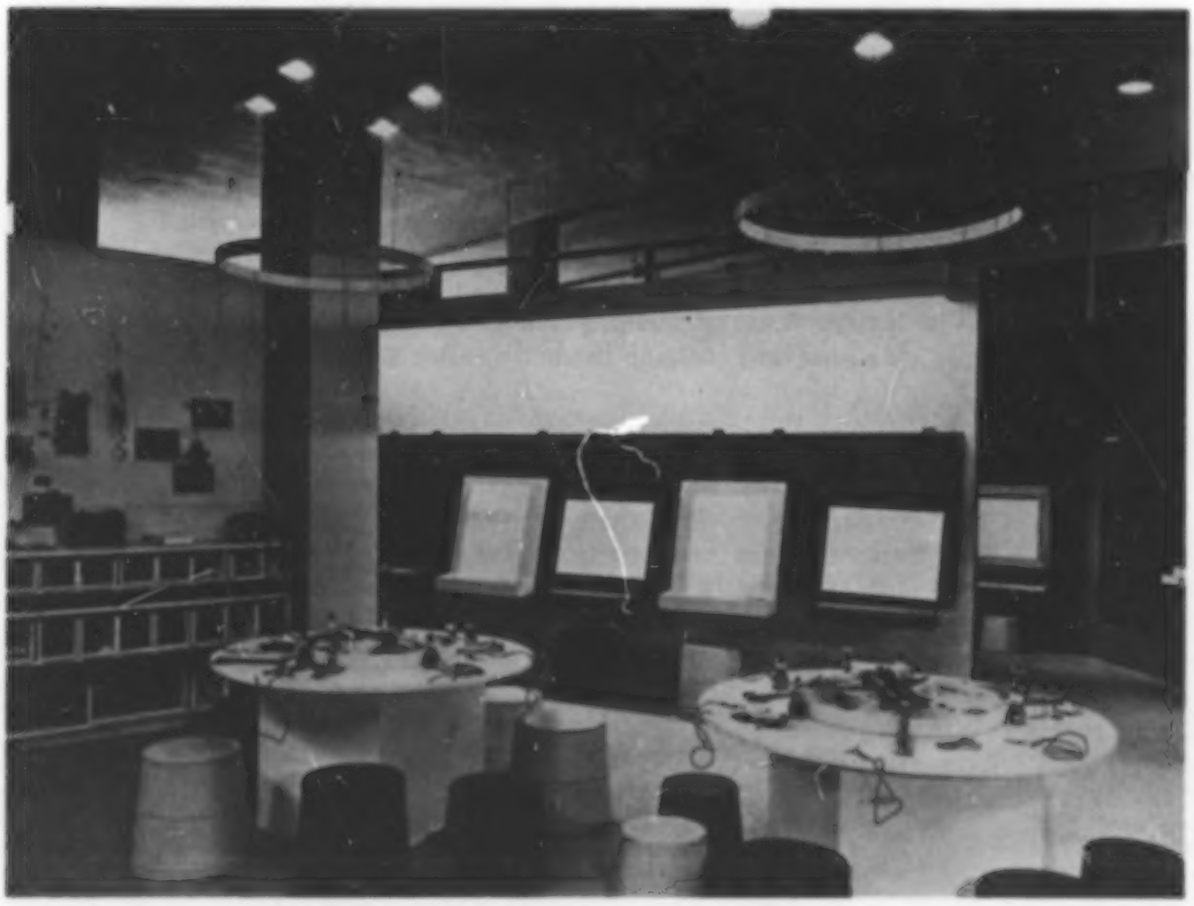

FIG. 38.—Art studio for children, Children's Carnival, Milan, Italy, 1957. Courtesy Education Department, Museum of Modern Art, New York.

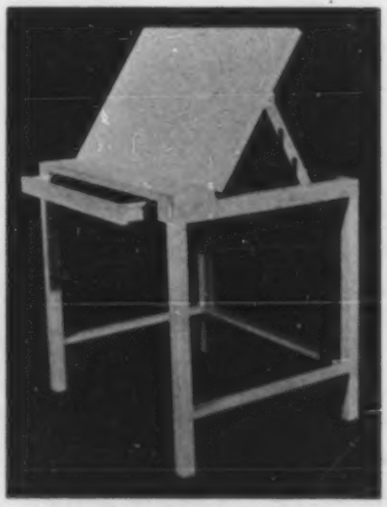

Fig. 39. —Easel-top art table, designed by Victor D'Amico. Courtesy Education Department, Museum of Modern Art, New York.

to use rooms in which slides, projection equipment, and other audio-visual aids cannot be properly used, and to curtail displays of pupils' and professionals' art works because bulletin boards are unavailable or because local regulations restrict the use of such necessary items as picture books, thumb tacks, or even masking tape.

A number of participants expressed deep concern about the fact that art room and other school facilities are seldom made available to pupils, parents, and community residents during evening, after-school, week-end, and vacation hours. They felt that many of the limitations of present art educational offerings for pupils, parents, and others could be considerably extended by making fuller, around-the-clock and throughout-the-year use of existing facilities.

It was pointed out that not only art rooms, but adequate art supplies and equipment are lacking in most elementary schools, in many secondary schools, and in some colleges, universities, and professional art schools. And it was felt that even more alarming than the inadequacy or absence of certain items regarded as essential to a minimal art education program, is that fact that some persons do not even seem to be aware that the need for such items exists!

In spite of the fact that unanimous and widespread professional opinion has, *for nearly two decades, urged art teachers to balance their encouragement* of students' personal art expression with guided learning experiences in the study of historic and contemporary professional art works, and with related studies of visual and structural phenomena in the sciences, a broad segment of art teachers, especially at the elementary school level, have nothing in the way of teaching aids let alone original art works and specimens from the natural, biological, physical, and mathematical sciences with which to implement this aspect of the art education program. Investigations have shown that art teachers have not even requested that books, films, reproductions, or slides be ordered (due in some cases, to a feeling of inadequacy because of their own limited training in art and other subjects; but in other cases because of decided preferences for teaching "studio" art in which expression often excludes or minimizes study of the work of others.

Seminar participants agreed that general limitations of supplies and equipment (ranging from paint, clay, collage, and print media, to original works, reproductions, slides, films, film strips, and projectors) were most severe at the elementary school level but were also a problem at the upper levels. Many secondary schools, and even some colleges and professional art schools, it was pointed out, have inadequate supplies, equipment, art libraries, and teaching aids. Original art works and prime resource materials in related fields, whether acquired as gifts, borrowed, rented, or purchased, are extreme rarities in most elementary and sceondary schools and in many institutions of higher learning.

On the other hand, an "over-supply" of certain materials (regarded as undesirable) was noted. "Fill-in" ditto sheets are widely used by elementary classroom teachers who (perhaps inadvertently) sacrifice growth in creative expression for what some consider to be gains in reading, arithmetic, and social studies skills. Widely-condemned pre-designed (sometimes even pre-cut) craft kits, numbered painting sets, and other stereotyped devices are still in limited use, and a number of other actively unaesthetic materials and activities are occasionally offered in the name of art.

Though well-illustrated and profoundly-written books, periodicals, and other bonafide art resources are lacking in most schools, courses of study (someone called them "curses of study") decidedly are not. Most of these are mimeographed, locally-produced publications designed to improve art education, but in actual fact they more often than not cater to the "make a take-home project each day" mentality, offer over-simplified recipes, present step by step lessons, and contain other items long deplored by enlightened art educators, artists, and aesthetically-informed laymen. Seldom do courses of study deal at all adequately with means of achieving aesthetically significant art expression or art historical learning experiences. A majority of seminar participants felt that most locally-produced courses of study (a number of which were examined) do more harm than good, superficially duplicate what can be found in art education texts of higher quality, and are a waste of time and money.

In order to describe more specifically by example the nature of prevailing art education in elementary and secondary schools, and in art teacher education, the following presentations of three on-going programs were made.

Fig. 40.—Fourth-grade boy, painting. Courtesy Midtown Ethical Culture School, New York.

The Art Program at New York's Midtown Ethical Culture School

Professor Angiola Churchill of New York University described the elementary art education program of the Midtown Ethical Culture School, New York City, as follows:

> There are approximately 500 pupils (ranging from 3-year-old nursery school children to 11-year old sixth graders) and about fifty teachers (of which approximately half are specialists) in the Midtown Ethical Culture School. There are two art teachers plus a full-time assistant who assumes major responsibility for distributing, collecting, inventorying art supplies and keeping them in neat order, and helping in clean-up activities. Pupils' parents are, generally, well-educated, culturally-enlightened persons in the middle and upper middle income brackets. The annual budget for art supplies averages $1,500., not including allocations for art materials used by classroom teachers in supplemental art activities.
>
> The Midtown Ethical Culture School has four art studios, each approximately 20' x 30' in size, of which two are used primarily for drawing, painting, and collage, one primarily for ceramics, and the other for crafts. Each studio has ample storage space for completed works as well as work-in-progress (including overhead racks for mobiles, etc.), double sinks, good natural as well as artificial light, tackboard walls, and movable room dividers. The usually-open spaces within each art room can easily be divided by means of movable patitions which can be handled by children as well as teachers. The art studios were designed by the art teachers to aid in developing and motivating children's art interests and abilities.
>
> Under the guidance of the art faculty members, classroom teachers, parents, and the school's administration, a unified cohesive, and philosophically consistent attitude toward aesthetically-oriented art expression and study prevails in specialized art teaching, classroom instruction, and parent teacher association activities. In addition to one hour per week of scheduled, specialized art instruction, and frequently-scheduled two or three hour periods for more extensive and intensive work, children may come to the art rooms for an additional one or two hours per week of supervised work on special projects. The studios are also open during after-lunch and after-school periods. The art teachers also have time to provide consultation, in-service art workshop, supervisory and exhibition-preparation services for art activities which classroom teachers initiate in their own rooms. Conferences with parents are also a regularly-scheduled part of the total art program.

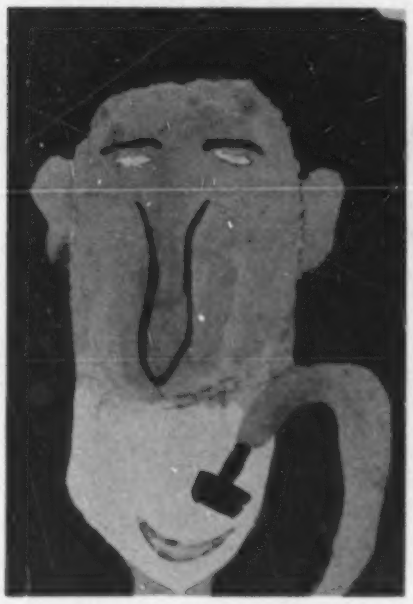

FIG. 41.—Painting by boy, age 9. Courtesy Midtown Ethical Culture School, New York.

FIG. 42.—Nursery school child manipulating play-dough. Photo by Arthur Leipzig.

FIG. 43.—Nursery school child experimenting with finger paint. Photo by Arthur Leipzig.

Among the art activities included in the program are sequentially-structured experiences in drawing, painting, poster-, mural-, and diorama-making, sculpture and other three-dimensional construction, ceramics, sewing, weaving, stage design, collage, mosaics, filmmaking, illustrating the school newspaper, and the study of professional art works (the school's collection of slides, reproductions, original contemporary art works acquired by means of charitable gifts and the proceeds of annual sales of donated art works, and field trips to New York art galleries and museums, greatly enhance the latter).

Major emphases, in what has been referred to as an aesthetically-oriented program of creative art expression and study, are placed upon the development of self-understanding, upon an improved understanding of the local, regional, and world community, and upon understanding such art-related subjects as music, drama, and the sciences and social studies. Emphasis is placed upon the development of intellectual understanding and artistic development in such personally-expressive and conceptual qualities as: the uniqueness of one's self image; attitudes toward one's peers, family, pets and other animals; the mystery of the unknown; fantasy; day dreams; and man's potential growth in all fields of human endeavor. Also stressed are personal discovery in both art expression and the development of aesthetic insight, and confidence in one's own working methods, attitudes, and concepts. To realize these objectives, both art and classroom teachers regularly utilize individual as well as group critique methods, and stress personal as well as teacher evaluation in all phases of the art program.

Fig. 44.—Art class at Phoenix, Arizona, Union High School.

The Art Program of the Phoenix, Arizona, Union High School

Dr. Eugene Grigsby, of the Phoenix, Arizona, Union High School, thus described the art education program of which he is the head:

> The Phoenix Union High School art program is geared toward helping students develop skills, knowledge, and values, as they are related to the visual arts and to a way of living. The program tries to help students develop: (1) skills needed in producing works of visual art; (2) knowledge of the historical background of contemporary art; (3) a sense of taste through understanding basic design; (4) a sense of critical selection in terms of skills, knowledge, and understanding of basic design; (5) a sense of self-respect for their own abilities and limitations as well as a respect for those of others; and (6) the ability to work with others cooperatively by exchanging ideas and trying to achieve a better mutual understanding.
>
> Our main concern is the individual student and his growth and development during the time he is enrolled in the courses he selects. But although our main concern is the individual, the means by which we attempt to develop values considered important are the visual arts.
>
> One of our major objectives is to encourage students to further develop their visual understanding and to integrate this understanding with a sense of good taste which we feel can improve their lives and the communities in which they

live. We attempt to reach this objective by helping students to build worthwhile skills, to develop sound working habits, to become sensitive to the visual world, to secure knowledge and develop curiosity about art, and to utilize these skills, attitudes and understandings in improving the visual qualities of their homes, communities, and the world in which they live.

Nature of the School Environment and School Population

Our school and campus are large, covering over three downtown city blocks and consisting of approximately twenty buildings. It is a comprehensive high school with a Trades and Industry department where a variety of subjects, from refrigeration to bakery, are taught.

Our school accepts students from all parts of the city. The majority of students are from low income families and represent a wide variety of religious, national, and racial backgrounds, including Caucasian, Negro, Indian, Chinese, Japanese, Mexican, and many extractions and mixtures.

The climate is hot and dry most of the year which is conducive to more outdoor activities and physical development for children than is true in some other parts of the country. Many students live in one and two room homes which are little more than shacks. Some homes have dirt floors, and in some instances house as many as twelve persons. Some homes are without running water and have only one source of light. Needless to say, there is a scarcity of reading material, nor is there space to study.

Most of our students come from one or more of thirteen elementary school districts. Some districts offer no opportunities for art experiences. It is therefore necessary to discover the level of development of each student, so that we will know at what point to help as well as what to expect from him in terms of his background and ability.

Course Offerings and Staff Members

We offer a general art course for all students, and they may elect other art courses such as ceramics, photography, fashion, and interior design, or commercial art.

Approximately 10% or 500 of our approximately 5,000 students, are engaged in some phase of art instruction; and about one-fourth, of these students continue to study for two or more years.

We have four full-time art teachers.

Individual Growth and Development: The Self-Portrait

In my own classes, the problem of determining the drawing skills of the student at the time of enrollment is met by having each student draw a self-portrait. This drawing not only serves to provide visual evidence of how well the student draws but it also gives clues to attitudes about himself, his previous experiences, and his future ambitions. Students are first asked to draw themselves without aid of photographs or mirrors. Next, it is suggested that they might draw themselves participating in some activity they enjoy, some experience they have had, or some position they aspire to attain. These portraits serve as guideposts to further development. At the end of the year a second portrait is produced, and the two drawings are compared.

The beginning and end of the year portraits are not the only ones these students are asked to execute. They are encouraged to use themselves as models on several other occasions, for better understanding of themselves, and because it is difficult to get models. These portraits are done in different media; oil, ink, watercolor, and especially in the graphic processes such as wood-cut, etching, and lithography. Most of these are done with the aid of a mirror.

An additional self-portrait is encouraged as a part of the final examination; and for this examination, each student selects an artist to study. The final report is done in three parts, and the self-portrait, done in the style of a particular artist, is one part. In order to execute this portrait, it is necessary for the student to make a serious study of the work of the artist under investigation; to understand the media he most often uses; and to see oneself as the artist might have done. In addition to the self-portraits, autobiographies, test scores, and other materials provided by counselors are obtained for the purpose of supplementing information about the student.

Three of the six parts into which the year is divided are teacher-directed. The other three terms are student-centered, and those students who have definite ideas of what they wish to do have this time to explore and experiment. Most of the students are willing to follow directions during the teacher-directed periods when they realize that there will be equal time to experiment with their own ideas.

Drawing

An important aspect of the teacher-directed phase of the program is devoted to drawing, with *The Natural Way to Draw* by Kimon Nicolaides used as a reference. During this term the students are introduced to three different approaches to drawing (contour, gesture, and modelled) and are, in addition, required to produce a daily composition. These new approaches help to change certain preconceived ideas about drawing.

The Daily Composition

The daily composition is a small drawing, 6" x 9", of something seen in the previous twenty-four hours, a memory drawing showing man in relation to his environment. This is done during the first ten minutes of the class period and is kept in individually-bound booklets. This helps the student to develop discipline and the ability to concentrate: for at least ten minutes there is almost absolute silence in the classroom. This drawing not only forces a type of visual recollection; but it also helps to build a valuable store of visual images. During this period of silence the teacher is released to take attendance and do other routine work. Meanwhile, students reveal in this exercise the kind of activities they participate in, and the kinds of homes they live in. One obtains an intimate view of their family life. Over a period of time, through the effort of concentration and gradual development of self-discipline, most students develop some degree of seriousness of purpose in the work they are doing, and their drawings show a gradual improvement. When a student becomes discouraged about his work it is an easy matter, most of the time, to demonstrate how much improvement there has been by comparing his first composition with those he is now making. They also serve as sources of subject matter for paintings, drawings and other work when he is at a loss for something to draw or paint.

Design

Another phase of teacher-directed activities involves experiments in basic design. Studies relating to color, space, mass, line, texture, balance, rhythm, and emphasis, are explored. These explorations range from isolated design experiments to relating these elements through paintings, collages, sculpture, and graphic expressions. Problems related to design and expression are formulated by both teacher and students, and solutions to these problems are attempted during the term. Solutions are sought from sources outside the class as well as inside. A variety of people are invited to discuss historical, technical, and social aspects of problems in an attempt to stimulate creative thinking and to broaden viewpoints. Individuals may solve a problem through painting a picture, making a sculpture, creating a fabric design, or by some other creative technique.

Evaluation

Evaluation plays a major role in student development. It is concerned first with how the student goes about his work or his working habits; second with the work itself, the quantity and quality of the work produced; and third with what the student does outside the class to help improve his understanding, knowledge and skills. A checklist, jointly established by student and teacher at the beginning of the school year, is one tool which is used to rate these factors. A numerical value is assigned, after student-teacher conferences, denoting progress made in a given period of time.

The Art Club

Many activities, not possible during the class periods, are undertaken in the art club. This organization, in addition to regular meetings, takes trips, invites speakers, and conducts workshops. The meetings are held after school once a week and anyone is free to join, whether or not he is enrolled in an art class. The club holds an annual school art exhibition, and sponsors small exhibits showing works of former students, local and national professional artists, students from other schools, and work of general interest, throughout the school year. Members serve the school by making posters, designing scenery for dances and plays, and other activities including the design of a Christmas card for the Associated Student Body. Occasionally they meet with clubs from other schools and participate in activities of the local museum. The Art Club raises funds for a scholarship, which is given to a student who plans to continue study in the field of art or art education.

Summary

The art program at Phoenix Union High School, as briefly outlined is designed for all students and not for the "talented few." We have heterogeneous classes; some of the best and some of the poorest students in the school are often in the same class. Usually they work well together and learn to respect each other. The success of this program can be measured by ascertaining the degee to which students have expanded and applied their knowledge, not as artists or art educators, but as consumers, policy-makers and taxpayers. Many students return to report of their continuing activities, some of whom were the least expected to continue. Others are easily traced because they have continued to pursue their interest in art as teachers, artists or art directors. The vast majority, however, are seldom heard from. The true test of the quality of our program then, must come from the manner in which it affects the community, and the lives of those who have participated in it. Follow-up studies are needed to determine if the one or two years of our program contributed to the well-being of the majority of students.

The Art Education Program at New York University

Professor Hale Woodruff of New York University, thus described the art teacher education program at New York University:

Facilities

New York University's Department of Art Education studios and classrooms are housed on the twelfth and penthouse floors of a building adjacent to Washington Square in New York's Greenwich Village. A suite of thirteen rooms including faculty offices, a staff conference room; the departmental slide library and secretarial space is located in a separate, nearby building. The twelfth-floor studio and classroom facilities include five 20' x 30' studio-classrooms, two of which are specially equipped for sculpture and graphic arts respectively; the other three are all-purpose rooms, with projection facilities, for such courses as basic design, lettering, mechanical drawing, architectural design, interior design, photography, theater design, textile design, art history, methods of teaching art, art research, and art seminars. The twelfth floor also contains a corridor exhibition space and a small office and storage room. The penthouse floor, a recent addition, measures 40' x 50', with a folding wall which permits the division of the space into two 25' x 40' studios; and a balcony, measuring 15' x 40', which provides private work cubicles and space for lockers and storage. The balcony also permits studio class students to achieve semi-aerial views of models and still-life arrangements. The penthouse has two large, angular skylights, fluorescent and incandescent lighting, air conditioning, and a large outdoor patio providing New York skyline vistas.

But even with the new penthouse studios, the total space is limited, indeed inadequate; and necessitates tight scheduling of classes and limited student enrollments.

Teaching aids, resources, and equipment are constantly being built-up and refined. Aside from usual studio equipment, the department is building an ever-growing collection of slides, films, reproductions, (including books and doctoral theses) and magazines which are available for student and faculty use. The New York University Art Collection, one of the finest assemblages of modern art on any college campus,

FIG. 45.—Undergraduate painting class in penthouse studio at New York University

is a rich and unique source for the first-hand study of more than 600 examples of the art of our times. The collection brings outstanding works of living art to the entire University community, displaying them in faculty and administrative offices, studios and lecture rooms, and in lobbies, corridors, student lounges, and activity rooms in every division of the University.

Faculty

The present Art Education Department faculty consists of thirty-five members, of which ten are full-time and twenty-five part-time.* Among the full-time faculty members, two hold the rank of full professor; three, associate professor; two, assistant professor; and three, instructor.

The part-time faculty is recruited from highly-specialized art fields. They are persons who have distinguished themselves in painting, sculpture, graphics, design, art history, philosophy, and art education. The full-time faculty are equally outstanding, but are also able to teach related courses in art history, methods of teaching art, and the philosophy of art. The department seeks teachers, both full and part-time, who are professionally creative in their own right as well as proficient in the principles and procedures of teaching. All faculty members exhibit professionally as painters, sculptors, designers, or printmakers, or write and publish on the subject of art history, art criticism, art education, philosophy, or research. Many are called upon to present lectures, to serve as consultants, and to assume leadership positions in professional organizations.

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*Among recent additions to the part-time faculty are art critic/historians Irving Sandler, Lawrence Alloway, John Brzyotowski, and Kenneth Sawyer; painters Esteban Vicente, George Ortman, Milton Resnick, Richards Ruben, and Mercedes Matter; sculptors Jason Seley and Tania; architect Frederick Kiesler; and art educator Victor D'Amico.

FIG. 46.—Photo of New York University art students, instructors, and friends, used for announcement of annual student art exhibition. Photo by Harvey Cohen.

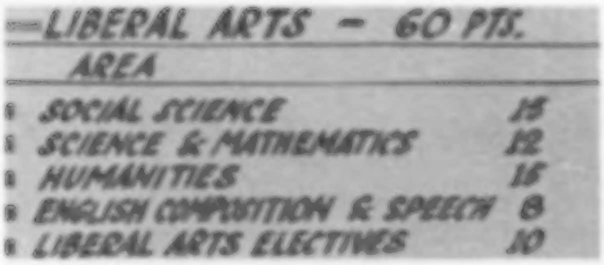
Students

Approximately 430 students are enrolled in the department, either as full or part-time students. Undergraduates total about 210; the remainder are pursuing either the M.A., Ed.D., or Ph.D. degree. While a large number of matriculants come from the greater New York area, an ever-increasing number come from other parts of the country and from abroad.

Admissions policy limits acceptance into the department to students who possess the highest potential as prospective artists or artist-teachers. A careful screening of applicants as to their academic and art achievement holds at a minimum the number of professionally doubtful or border-line students. Students who, once enrolled, fall below an average achievement level are advised to withdraw or transfer to a more appropriate curriculum.

Most undergraduate applicants come from high schools with excellent art programs, such as New York's High School of Music and Art and Abraham Lincoln and Washington Irving High Schools. The same may be said of transfer students who have attended colleges or art schools with superior programs. Some transfer applicants, however, both undergraduate and graduate are very carefully examined because they may as undergraduates have pursued studies which touched only lightly upon significant art experiences.

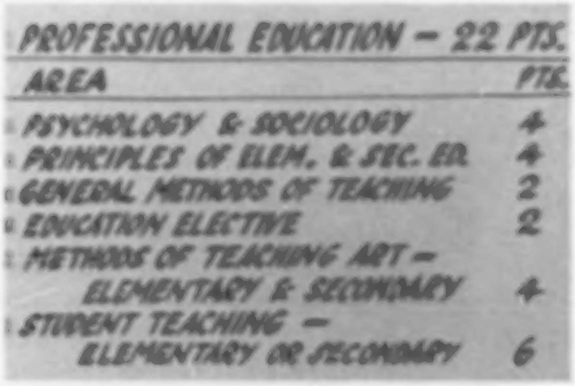
The flexibility of the master's and doctor's degree programs permits students to stress educational, philosophical, or studio work, or almost any combination thereof.* A number of departmental alumni have achieved high recognition in their respective fields: Larry Rivers, Alfred Leslie, Robert Goodenough, and George Segal in painting and sculpture; Dr. August Freundlich, Chairman of the Art Department and Director of the Lowe Art Gallery, University of Miami; Dr. Robert Bertolli, President of the Massachusetts College of Art; Dr. Prabha Sahasrabudhe, Director of the Children's Museum, New Delhi, India; Dr. Jerome Hausman, Director, School of Fine Arts, Ohio State University; and Dr. Louis Hoover, Director, Department of Art, Illinois Normal University and editor of *Arts and Activities*.



LIBERAL ARTS – 60 PTS.

AREA	
SOCIAL SCIENCE	15
SCIENCE & MATHEMATICS	12
HUMANITIES	16
ENGLISH COMPOSITION & SPEECH	8
LIBERAL ARTS ELECTIVES	10

FIG. 47.—Liberal Arts requirements in New York University art education curriculum.



PROFESSIONAL EDUCATION – 22 PTS.

AREA	PTS.
PSYCHOLOGY & SOCIOLOGY	4
PRINCIPLES OF ELEM. & SEC. ED.	4
GENERAL METHODS OF TEACHING	2
EDUCATION ELECTIVE	2
METHODS OF TEACHING ART – ELEMENTARY & SECONDARY	4
STUDENT TEACHING – ELEMENTARY OR SECONDARY	6

FIG. 48.—Professional education requirements in New York University art education curriculum.

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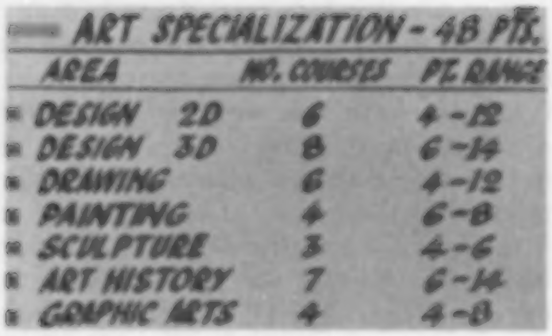
*Among recently completed doctoral theses and creative projects are: *A Study of Sung Dynasty Art Forms and their Relation to the Researcher's Painting*; *Space-time and Visual Perception* (a Sculptural Interpretation of Einsteinian Relativity Theories); *Reality Concepts in Contemporary Painting*; and *The Development of American Painting During the Great Depression*.



ART SPECIALIZATION - 48 PTS.

AREA	NO. COURSES	PT. RANGE
DESIGN 2D	6	4-12
DESIGN 3D	8	6-14
DRAWING	6	4-12
PAINTING	4	6-8
SCULPTURE	3	4-6
ART HISTORY	7	6-14
GRAPHIC ARTS	4	4-8

FIG. 49.—Art specialization requirements in New York University art education curriculum.

Programs of Study

At the present time, two major programs of undergraduate study are available: one, designed to prepare teachers of art for elementary and secondary schools; the other, for students wishing to prepare for careers in the fields of painting, sculpture, and printmaking. It will be noted that the course sequence in art specialization is essentially the same in both programs, based on the belief that these courses are fundamental in the early training of all art students, and, that upon these courses, students may base more advanced work in their chosen field of specialization.

The art teacher education curriculum meets teacher certification requirements in New York City, New York State, and most other parts of the country. All course sequences (liberal arts, studio, art history, and art education) are constantly being modified in order to offer the best-possible program of study in all art fields.

Sixty points in liberal arts courses are now required of all undergraduate students at New York University. Representing an increase in previous liberal arts requirements, this has necessitated a reduction in art specialization course requirements which the department hopes to increase by extending the undergraduate program to five years. The following curricula are somewhat typical (though seldom actual, due to accelerated programs of study and large numbers of transfer students) of the two undergraduate curricula.

Art Teacher Education

Recommended 8-Semester Program

Year	1st Semester	Pts.	2nd Semester	Pts.
Freshman	English Composition	4	Man & Society	3
	Introd. to Mathematics	4	Introd. to Psychology	3
	Speech Fundamentals I	2	Nature of Matter (Science)	4
	Design Fundamentals	2	Drawing II	2
	Drawing I	2	Mechanical Drawing	2
	Materials Approach to Design	2	Materials & Techniques of the artist or water color or oil painting	2
		16		16
Sophomore	Educational Theory & Application	4	Educational Theory & Application	4
	Hist. of West. Civil. *or* Hist. of U.S.	3	Hist. of West. Civil. *or* Hist. of U.S.	3
	Art History	3	Speech Fundamentals II	2
	Anatomy for the Artist	2	Three-Dimen. Design	2
	Figure Drawing	2	Drawing III	2
	Materials & Techniques of the artist or water color or oil painting	2	Crafts: ceramics or wood or metal	2
			Design elective (see details below)	2
		16		17
Junior	Educational Theory & Application	4	Art History	3
	Literary Heritage	3	Literary Heritage	3
	Government & Politics *or* American Economy	3	Lib. Arts Elec. by Advsmt.	2
	Painting in Oil	2	Teaching of Art, Elem. Sch.	2
	Graphic Arts	2	Figure Painting	2
	Introd. to Sculpture	2	Graphic Arts	2
		16	Sculpture	2
			Design elective: Photog., textile, theater, advertising, lettering, architecture, or interior design	2
				18
Senior	Biological Science	4	Philosophical Analysis	3
	Liberal Arts Electives, by advisement	5	Liberal Arts Elective, by advisement	3
	Art History	2	Art History	2
	Tchng. of Art, Jr. & Sr. H.S.	2	Student Teaching: Elementary, Jr., or Sr. High	6
	Crafts: wood, metal, or ceramics	2		14
	Design elective	2		
		17		

FIG. 50.—Art teacher education curricu-lum at New York University.

Painting, Sculpture, and Printmaking

Recommended 8-Semester Program

Year	1st Semester	Pts.	2nd Semester	Pts.
Freshman	English Composition	4	Man & Society	3
	Introd. to Mathematics	4	Introd. to Psychology	3
	Speech Fundamentals I	2	Nature of Matter (Science)	4
	Design Fundamentals	2	Drawing II	2
	Drawing I	2	Water color painting *or* Introd. to oil painting *or* Materials & Techniques of the artist	2
	Materials Approach to Design	2	Mechanical Drawing	2
		16		16
Sophomore	Hist. of West. Civil. *or* Hist. of U.S.	3	Hist. of West. Civil. *or* Hist. of U.S.	3
	History of Art	3	SpeechFundamentals II	2
	Anatomy for the Artist	2	Three Dimensional Design	2
	Figure Composition	2	Drawing III	2
	Water color painting *or* Introd. to oil painting *or* Materials & Techniques of the artist	2	Design elective: Photography, Textile, Lettering, Advertising, Theater, Architectural or Interior Design	2
	Educational Psychology	2	Crafts: wood or metal	2
	Unrestricted elective	2	Educational Sociology	2
		16	Unrestricted elective	2
				17
Junior	Literature	3	History of Art	3
	Government & Politics *or* Economics	3	Literature	3
	Painting in oil	2	Liberal Arts elective	2
	Graphic Arts	2	Figure Painting	2
	Introd. to Sculpture	2	Graphic Arts	2
	Art elective (major)	2	Sculpture or Ceramic Sculpture	2
	Unrestricted elective	2	Design elective	2
		16		16
Senior	Biological Science	4	Philosophy	3
	Liberal Arts elective	5	Liberal Arts elective	3
	History of Art	2	History of Art	2
	Design elective	2	Art elective (major)	8
	Crafts: wood or metal	2		16
	Art elective (major)	2		
		17		

FIG. 51.—Painting, sculpture, and print-making curriculum at New York University.

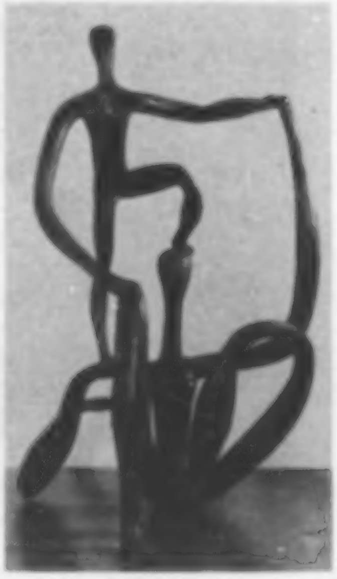


FIG. 52.—*Acrobats*, 1954, bronze, 44 x 24 x 20", by Mary Callery, New York University Art Collection.

Experimentation and Innovation

A number of faculty members are experimenting with new approaches to teaching in an attempt to discover new and more significant ways of educating art students. Bold experiments in studio classes have developed new insights in concepts of space, form, movement, and means of personal expressiveness. Students are challenged by working in unusual surroundings and under unique conditions; they are exposed to changing forms of illumination in the studio; provocative sounds and objects in motion; new ways of drawing, painting and sculpturing from the model; using new materials, or traditional materials in new ways; and creating works on a much larger than usual scale, some of which are then translated into sound, sight, and movement forms, such as "happenings."

In art history courses the main purpose is to develop an involvement in and deep understanding of works being studied by exploring the structural concepts underlying them. Students analyze the works with reference to space, color, form, scale, value, surface, movement, and other factors; applying understandings derived thereby to their own creative efforts. Art history study in the Department of Art Education includes studio experiences and written reports on the cultural and social aspects of the historical art period studied, as well as slide-illustrated lectures which are augmented by depth studies of original works from the University Art Collection. The studio aspects of art history courses stress absorption of the aesthetic essence of works studied by means of attempts to transform them into students' personal imagery, in a contemporary sense.

Other venturesome explorations take place in courses in graphics (new techniques, processes, and materials), interior design, textile design, mechanical drawing (creative, as well as traditional uses of instruments), sculpture, and painting.

A student-teaching library has been established in which slides and portfolios of projects developed by student teachers

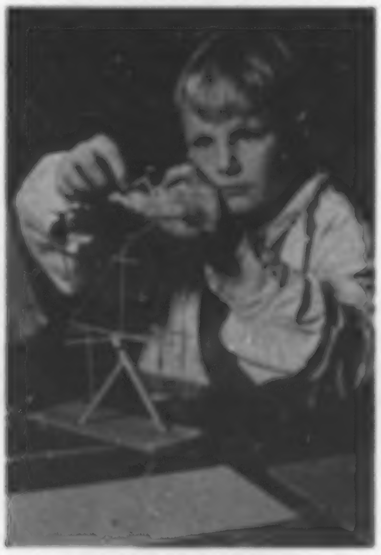


Fig. 53.—Third-grade boy, constructing balsa wood and wire sculpture. Courtesy Vancouver, B.C., Public Schools.

provide resource materials for faculty members as well as students. The materials in this library are catalogued according to the types of teaching situations that are found in elementary and secondary school art programs.

The underlying philosophy of the department is based on the belief that the artist-teacher can make the most profound and lasting contribution to the educational experiences of his students. The artist-teacher is envisioned as one who is essentially creative, fine-arts oriented, dynamic, inspiring, and has a sympathy for and an understanding of the art problems of his students. The department is philosophically geared toward the development and cultivation of such persons.

A PHYSICISTS'S VIEW OF ART EDUCATIONAL REFORM

Dr. Jerrold Zacharias, chairman of the federal inter-agency Panel on Educational Research and Development, and Professor of Physics at the Massachusetts Institute of Technology, expressed his view on possible reform and innovations in art education based upon his extensive and many successful experiences in effecting improvements in the teaching of science, mathematics, and other subjects. He prefaced his remarks by indicating how, as a member of the President's Science Advisory Committee where broad educational reforms had repeatedly been suggested but volunteers to spearhead action programs had not been forthcoming, he suddenly realized that the familiar quotation "It's me, oh Lord!" was directly applicable to himself and a few of his professional colleagues.

Stating clearly his position as a physicist who wished to do no more than suggest that certain approaches to curriculum reform in the sciences might be examined for possible usefulness in art education, he told how a number of scientists had realized that their nearly-exclusive concentration upon pre-professional and professional training, at the expense of excellence in the general science education of elementary and secondary school pupils and general college students, was potentially harmful not only to society as a whole but to the science professions themselves. Dr. Zacharias said that he and his colleagues strongly believe that this basic outlook toward science education applies to all specialized subjects, not only because educated persons in this era need to possess an excellent and solid grasp of the fundamentals of all major disciplines, but also because the vast numbers of individuals thus reached are almost bound to include some whose deep interest in and high aptitude for one or more specialized subjects might otherwise remain unknown or be unnecessarily and perhaps harmfully late in development.

Leading practitioners and theorists in science and other disciplines, Dr. Zacharias suggested, will need to "get down to a level of understanding, insight, and subtlety that most professionals have been trained without." He urged leaders in all subject disciplines to "get out into the classrooms to find out what needs doing, how to do it, and to know first-hand the gorgeous potential of children who are as yet unspoiled and are anxious to learn." He suggested they disregard educational conventions and preconceptions; experiment freely within the scope of their personal beliefs and suppositions; deal with what they feel children need rather than what they (or others) may think children like ("they might enjoy coke with rum but this doesn't mean they should have it"); try out on other disciplines such scientific procedures as tentative hypotheses and successive approximations; ask "why?" and "is it lastingly useful?"; and urge pupils, teachers, administrators, and parents to take similar experimental positions and to ask similar questions.

Dr. Zacharias indicated that at the inception of the reform movement in science education it was decided that concentration upon the problems of college freshmen would be preferable to simultaneous and equal attention to the needs of elementary and secondary school pupils and upper undergraduate and graduate students. They had asked themselves, "What can we do best, now, and at a level we know something about?" In addition to feeling it was better to do one thing thoroughly and well than to do several things on a more limited basis, the professionals who committed themselves to this project were, in the main, experienced college teachers who felt that the college freshman level was the highest (and hence closest to their personal experience) level at which improvements-in-general in nonprofessionally-oriented, science education could be made directly applicable. With the help of graduates from the college science programs in which reforms were effected, Dr. Zacharias and a number of his professional colleagues were subsequently able to effect dramatic improvements in elementary and secondary school science programs, and have, to date, been able to retrain more than half of the science teachers employed in American schools.

Of the many essential preconditions for lastingly-effective general education in special subjects stated by Dr. Zacharias and his colleagues, is one which is bound to appeal strongly to members of the art teaching profession; one for which they have, indeed (but until now, without much success), pleaded ardently. It is *imperative,* said Dr. Zacharias, that teachers of every special subject—science, mathematics, art, and others—have a laboratory, studio, workshop, or other uniquely-equipped facility in which to effectively carry out their instructional programs. He indicated that the special equipment; the efficiently-stored, readily-available, and wide variety of tools and materials; the particular appearances, aromas, and textures; *the entire environment and atmosphere* of the laboratory, studio, or workshop; greatly enhances and enriches students' learning experiences. Simultaneously, such an environment appeals highly to, and contributes to the highest possible educational efficiency of, the professionally-trained specialist teacher.

Direct, undiluted, professionally-guided experiences with professional materials and equipment in a serious, functioning, professional atmosphere is necessary, Dr. Zacharias insisted, if special subjects are to really "come alive" for students. Anything less, he warned, induces both teachers and students to work in a pseudo-professional, even "fake" way.

A number of other preconditions, felt by Dr. Zacharias to be important to lasting and effective education in special subjects, have, together with means of implementation and modifications suggested by other seminar participants, been incorporated into the recommendations which appear later in this report.

The following are summaries of illustrated descriptions of recently-developed experimental approaches to the development of visual awareness which were presented at the seminar. Each of the three speakers made clear his view that though improved aesthetic awareness and expressive skills might grow out of the approach to teaching which was described, the immediate and primary aim was the heightening of sensory awareness and response, which, it was believed, is an imperative prerequisite to subsequent considerations of the specific means by which total art education might more effectively be developed.

THE ROLE OF URBAN DESIGN IN ART EDUCATION

Karl Linn prefaced his visually-documented plea for urban design as an integral element of visual arts training at all levels of education by saying, "My message isn't a message of theory alone: it's an offering of an experience." Based upon his extensive study of urban design in many parts of the world, and upon his experience in working on neighborhood renewal projects with persons of all ages, Mr. Linn described and illustrated a number of means by which art teachers, classroom teachers, and others could, and should, involve themselves, their students, and community residents in urban design.

> We have all encountered art students who find themselves questioning the validity and meaning of their work. They flounder, trying to find some context, some reality in which they can feel at home and productive. But they don't know how; they don't even know where to look. They peer into their souls, but find that isolated, personalized expression is not enough, so they come to us saying, "But you can't work just to work." What can we answer? We were raised during the last few decades of unquestioned *terra firma*, not in an atomic era where human survival is permanently in question. It is for us, as art efucators, to understand their profound sense of urgency, their feeling of existential imminence and impatience, and above all, to provide a framework within which they can see the need to work and work well.
>
> What is this framework? What are our students really seeking? Youth today seeks purpose and commitment. Youth today seeks, through direct contact with real people in real places, to discover its place and identity. Are *objets d'art* or canvas frames large enough to absorb and transform the energies of today's youth, a youth that distinguishes itself by its violence? If opportunities for creative expression within our schools continue to be limited to ego-oriented self-expression,

FIG. 54.—Hands joined in work.

Fig. 55.—Playground horse constructed of cut-up telephone pole and scrap lumber.

at best, our students will develop a preciousness and cynicism, and become servants of disoriented loneliness and despair.

Mental health studies have shown that we develop an organic dependence on our total physical environment. Where this dependence is a real one, where we can mould, can leave our imprint upon our environment, it is supportive of mental health; but when we live as strangers in an impersonal space where we cannot even drive a nail into a wall, we develop no real sense of home and belonging.

We have adhered to an aesthetic that treats environment as a sculpture, as a finite work of art. A few isolated masterpieces have been produced. Mostly, they have been prima donnas, providing opportunities of creative expression for designers, but relegating the users, the inhabitants to mere spectators in their own homes and cities. A new environmental aesthetic must be developed, where our physical environment becomes the result of a combined effort: the professional creating an open, responsive environmental structure to be enriched and moulded by its inhabitants. This can result in a subtlety, refinement and articulation of expression and involve-professional alone could never achieve. Here lies a framework within which youth's drive towards expression and involvement can be channelled, for it is a framework of need: our cities are ugly and deteriorating. Most certainly, the immediate

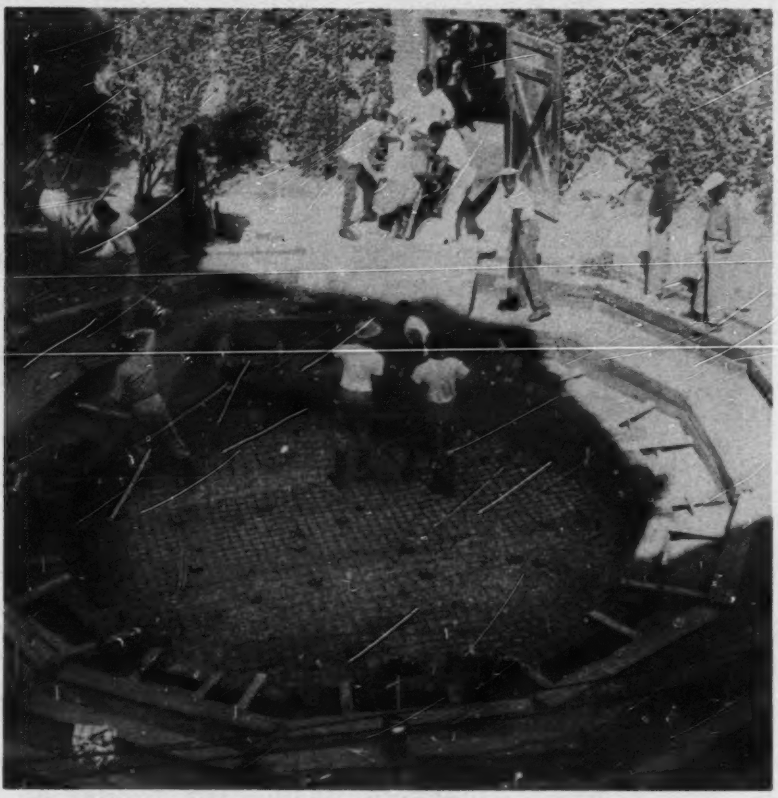


FIG. 56.—School dropouts in landscape training program sponsored by Manpower Development and Training Act create amphiltheater with railroad ties and other materials.

neighborhood of every school cries out for elaboration and refinement. Who will do it, if not our students? Commerce will not take the initiative, for there is, as yet; no commercial demand for anything specific, nor is it clear what kind of skills and knowledge are needed. There is only an awareness of ugliness.

It is our students who can forge and develop new tools and modes of expression, but it is the responsibility of the school to present them with this unprecedented challenge. If we were to let them into the environment of school and city, were to make it legally and jurisdictionally possible for them to work, our students could become real crusaders. Once beginning to meet the challenge of their communities and towns, they will be called upon; and without this sense of calling, they can develop neither the responsibility nor the dignity of real vocation.

As leisure increases and as we make the transition from war to peace, we will have to make art and building into a new ritual of society. If we give it prestige, perhaps leisure will not degenerate into a series of make-believe or artsy-craftsy passtimes. Machines can relieve man from the drudgery of work and free him to a craft pursuit. Our students can become the catalysts and pace-setters of a structured excitement that results in an environmental art. They will become equipped to develop the methods, materials and products which would broaden the basis of human participation in a labor-intensive craft technology.

If every school in the country took on its responsibility, youth would establish a quality of genuine involvement. They are willing, for they have come to us eager to explore, to expose themselves in creative endeavor. Right now, we don't have the know-how. We don't even know how to create an elaborate environment consistent with the needs of this day and age. One of the fundamental aims of art education must be the development of an environmental craft technology, with which we might share directly in shaping, rebuilding and developing our environment. In so doing, we will find unprecedented opportunity for our students and ourselves to become active, dynamic members of society.

The masterpieces of art will become that much better appreciated in their greatness if art students have a chance to explore their own limits—which are large. They shall then begin to see more than the static formal aspects, for, understanding the scope of creation, they shall no longer find themselves passively surrendering in awe to man's past achievements. Good mass-production will provide the basis of exposure and acculturation; but in order for it to be really fertile and result in an artistic intensification of appreciation and discovery, we must equip our students to do more than retreat in vicarious admiration.

If our schools can become broad generating centers that transmit the energy, commitment and excellence within them to others, we will find a society developing in which art becomes really a way of life.

AN EXPERIMENT IN VISUAL PERCEPTION

Bartlett Hayes demonstrated the use of slides coordinated with a tape-recorded commentary in a presentation of one of a series of experiments in visual perception which have been developed at the Arts and Communications Center at the Phillips Academy, Andover, Massachusetts. Portions of the text and slides of his profusely-illustrated presentation follow:

The case for Visual Perception rests on the premise that the informed and sensitive use of the eye is necessary for a broad understanding of the modern world. The complexity of our present environment is taken for granted; but how much does the ordinary person notice the details, know why they are shaped as they are, or see them as a meaningful whole? Abstract information is difficult to keep in order if the memory is not aided by the eye, and certain facts of nature are almost impossible to understand in terms of words—how easily could you understand or describe crystallographic structure without microphotographs to help? As a visual apparatus, the camera

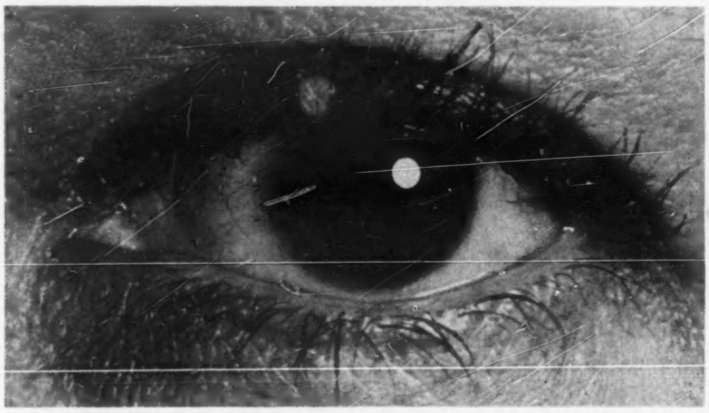


Fig. 57. — Photo of an eye.

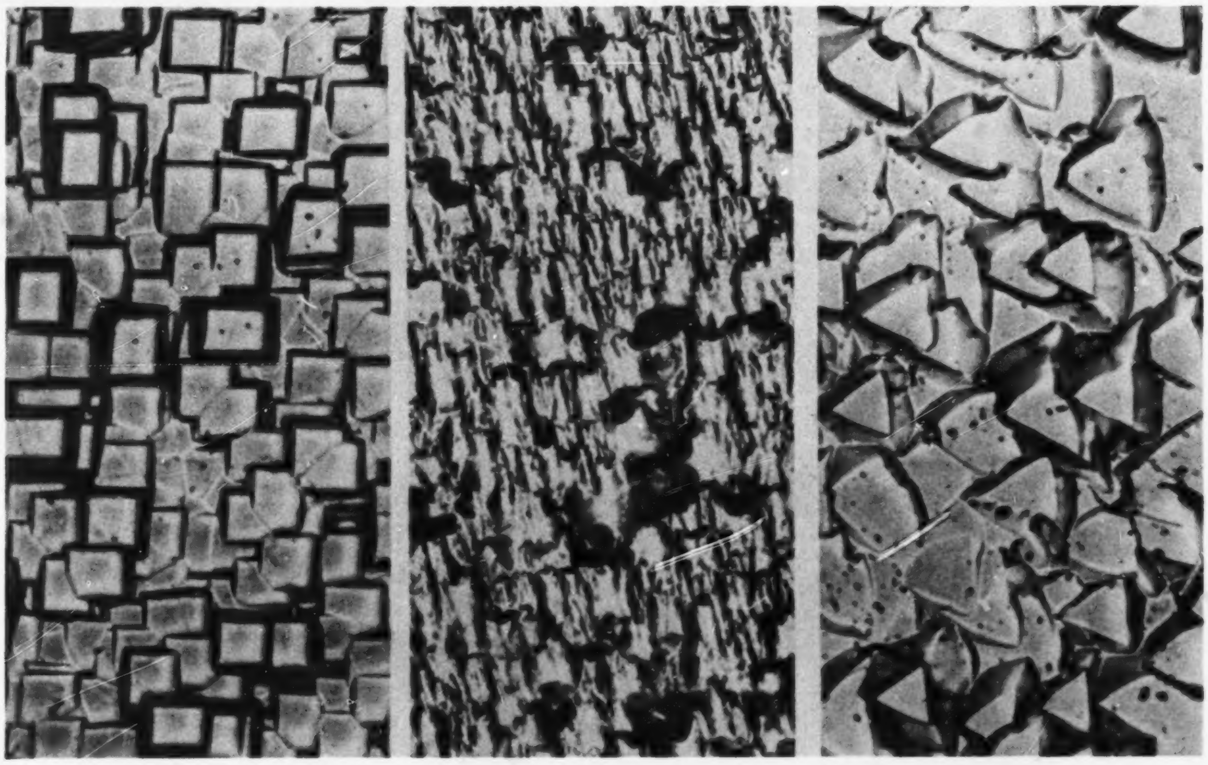


Fig. 58. — Etch figures on the main crystallographic planes of germanium.

can indeed help, but how important a role does it play in the present curriculum?

Most of today's schooling is still involved with books, facts, and apparatus, while tending to fall short of relating them, and depriving meaning from interrelationships. Both Socrates and Leonardo believed as facts many things which have since been disproven. What made them such extraordinarily cultivated people was their ability to take such information as their times offered and to make from it a new picture of the world. This is why many children today are not yet educated. Are there ways to provide better education for the equally comprehensive needs of today, and may training in visual perception provide an answer? A lesson

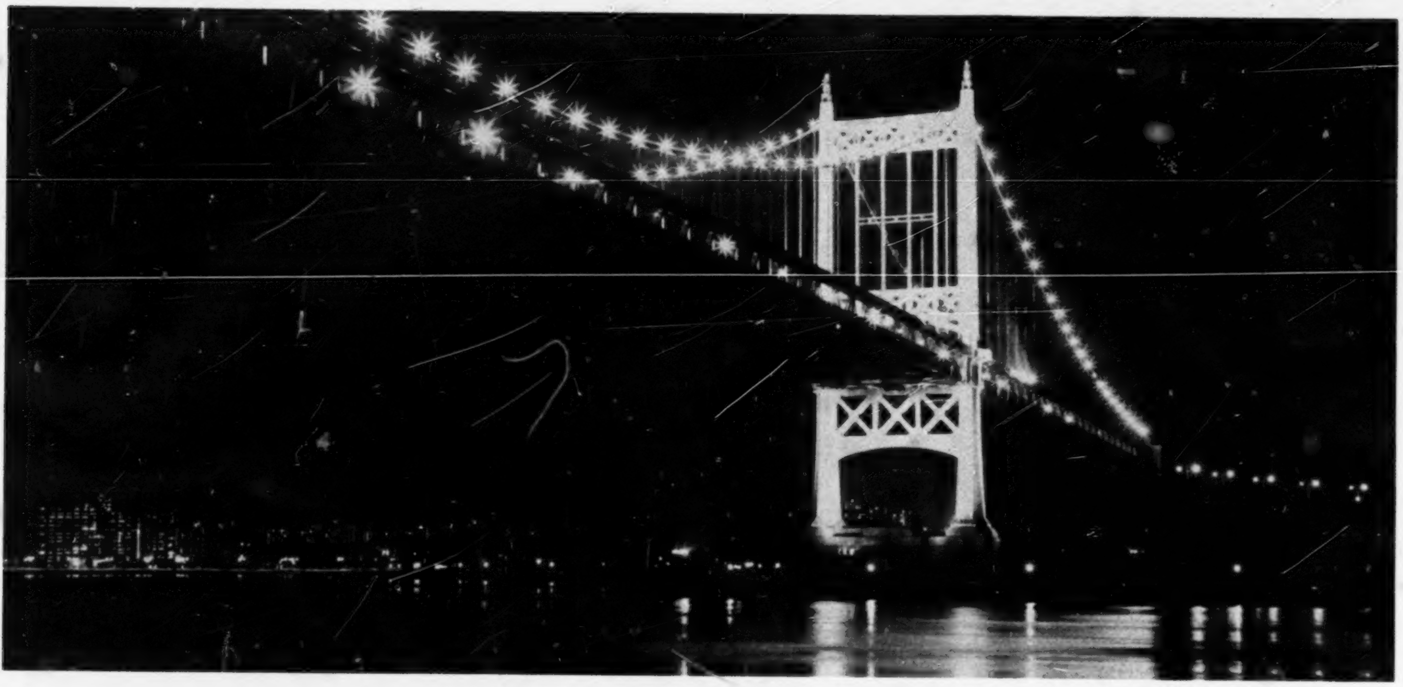


Fig. 59. —Bridge. Photo by Stanley Seligson.

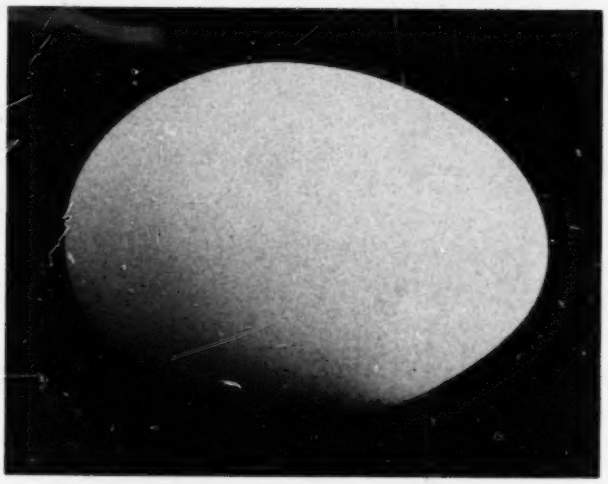


Fig. 60. —Photo of an egg.

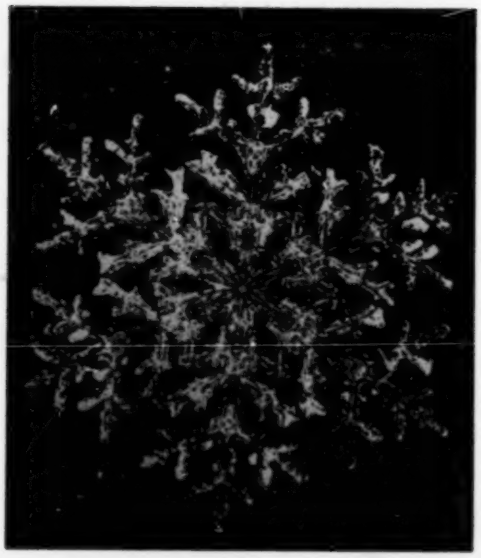


Fig. 61. —Snow crystal. Courtesy of the American Museum of Natural History.

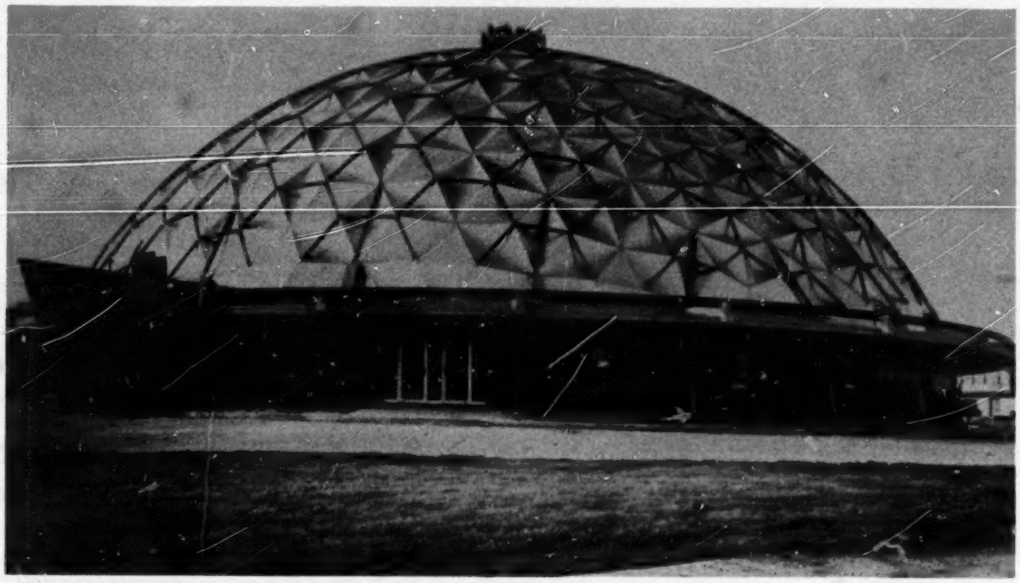


Fig. 62. – Bank building in Oklahoma City, Oklahoma, designed by R. Buckminster Fuller.

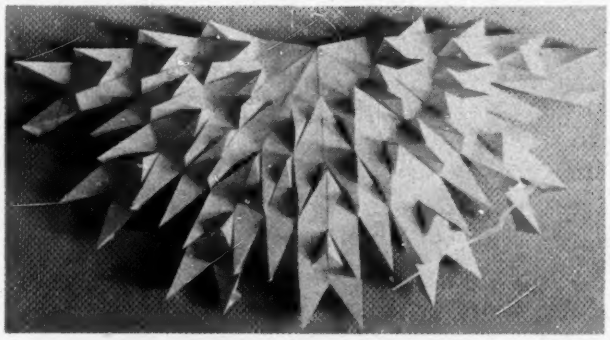


Fig. 63. – Folded paper construction. Courtesy Phillips Academy, Andover, Mass.

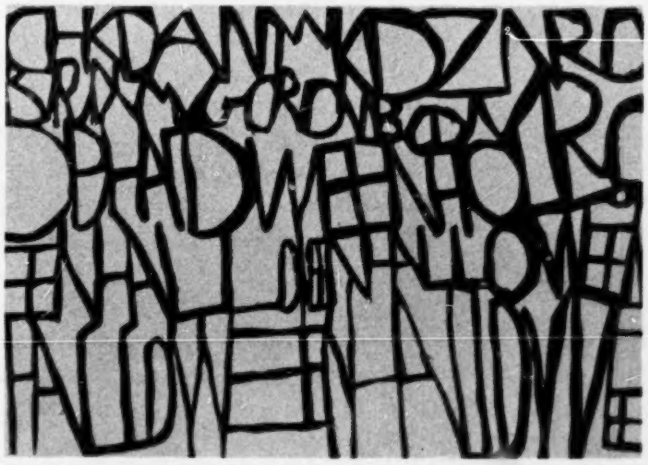


Fig. 64. – Cut-out picture based on letter forms. Courtesy Project, Inc., Cambridge, Mass.

comes from Leonardo, for he used his eyes as well as his intellect in order to make his picture of his world. His notebooks were strewn with perceptive comparisons. Leonardo compared all things in search of one. May our schools learn from this lesson of the past in a way that can be useful to the present?

May we develop perceptive insights by training pupils to notice relationships which, though possibly far-fetched, can yet stimulate the imagination that forms the basis of creative life; for example, by looking at a leaking ceiling and noticing its unexpected resemblance to a wholly different natural formation seen in an aerial photograph of the North Pole? Is one of the unexplored roles of education that of instructing pupils how to look for unexpected relationships, to doubt them, or perhaps accept them? Does vision become a valid tool for this purpose? Are we aware of the strength given the roof of the hippopotamus' mouth by the criss-cross pattern of cartilege? Almost certainly the engineer has arrived at the design of his bridge by a more abstract means; but would it be possible to discover more easily how to become inventive through such visual analogies?

If seeing can fortify the learning process, it would be well to recognize two directions: one is observing the natural world. For example, how can we learn to package delicate products? Ask any hen. Can we learn from nature about stringing high tension wires? The engineer's notebook is furnished with studies of snow crystals. And the designer appropriates such natural patterns in order to relate them symbolically, rather than specifically, to mathematical concepts. The other way in which seeing can fortify the learning process is through the sensitive visualizing of man himself. This is not an easy task, although the sense of sight is a common gift. It is up to the teacher to relate areas of awareness, the senses, the intellect, emotion, and intuition.

The scientist has paved the way in recent years by demonstrating his need to visualize abstract concepts. The effects of his vision are to be found in many engineering projects; such as Buckminster Fuller's Bank in Oklahoma City. His training was a personal involvement with visual experiences, just as it must be with young people, utilizing media which everyone can master, such as paper: how many structural forms can be created with this material, and in what direction do they lead—towards architecture, engineering, or a better ice cream cone? If the scientist has revealed a need for visualizing his concepts, is the average humanist without that need? How successfully can the ordinary student daydream about what he has learned from the book? Would relying on his vision be better?

The practical answer is to provide fresh, exploratory experiences for pupils and teachers who think they lack talent. Students can, for example, soon discover design by drawing letters, whether they go forward, backward or upside down. This can lead to other basic observations and simple ways of recording them, such as filling the intervals between any curved line and any straight line.

What is the relationship between reality and creativity? We can ordinarily recognize creativity when it is revealed in the work of artists. But how do we order it and stimulate it in the latent abilities of the young? One way is to explore the problem from the standpoint of teachers in a variety of academic fields. At the outset, non-art-teachers are apt to think the exercises are too much like art activities and fail to find them relevant to their own teaching problems and procedures. But in a little while they will see that a study of visual conditions helps students to broaden their ideas. Can we always believe what we see, and is the lesson useful in other disciplines? Or, can the teacher use visual images as analogies to demonstrate to his pupils how importantly the nature of a situation influences a constant in mathematics, or possibly how the environment governs behavior in biology? Can they understand more readily by seeing?

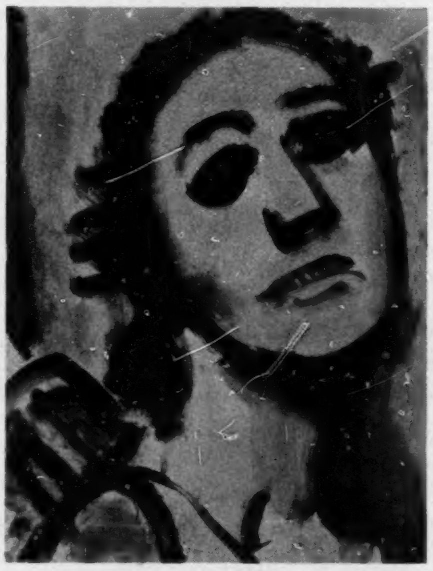


Fig. 65. —*Maria Lani,* 1928, watercolor, 17 x 12 1/4", by Georges Rouault. Courtesy Art Institute of Chicago.

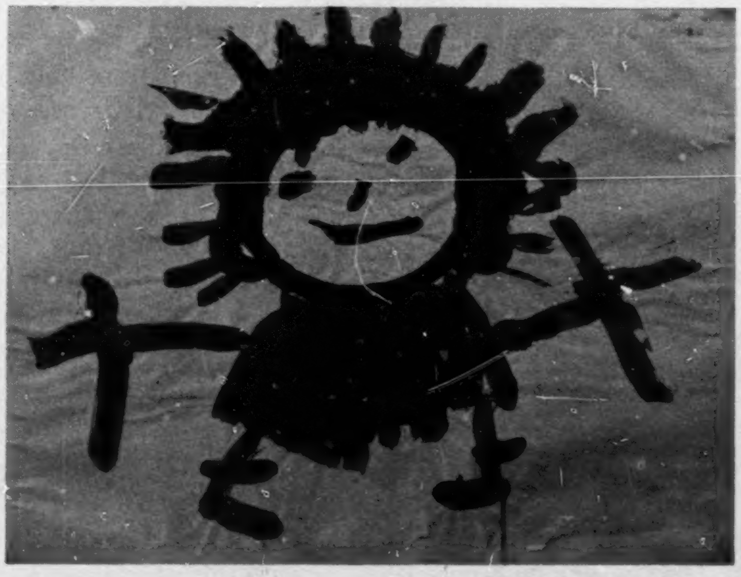


Fig. 66. —Painting by six-year-old girl.

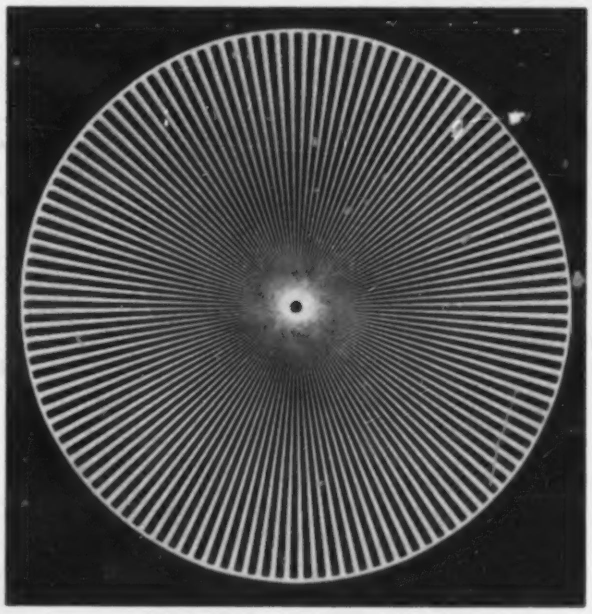


Fig. 67.—*Quadruple Colored Radial,* 1964, lightbox, silkscreen, and plastic, 40 x 40", by Gerald Oster. Courtesy Howard Wise Gallery. Photo by Geoffrey Clements.

Fig. 68.—Summer institute student makes rubbing of tree bark texture. Courtesy Phillips Academy, Andover, Mass.

Seeing can dramatically reveal unexpected truths. May such experiences be used by the teacher to warn students not to take things too much for granted, but to scrutinize the facts with care before making commitments? Perception in the field of vision tends to distinguish and often to reconcile many variables. One problem is to reconcile two opposite qualities, black and white, by selecting bits of paper and pasting them together in such a way that it becomes impossible to tell if the white shapes are on a black background, or the black ones are on a white. By analogy, can students be trained to find ways to reconcile opposing forces in physics, or opposite points of view in everyday life?

Man's search for meaning in one direction often discloses new meaning in another, if he is keen enough to spot its existence. In short, if through visual perceptiveness, teachers, as well as pupils, can learn to discover the values of the new as well as the old, and simultaneously learn to see the world as a whole, may not modern education be the better for it?

Mr. Hayes supplemented his slide/tape presentation with an explanation of the rationale underlying the activities in which he and his colleagues have been engaged, and a description of a six-week 1963 summer session workshop in visual communications for secondary school teachers of art and other subjects, which was cooperatively sponsored by the Phillips Academy, the Massachusetts College of Art, the Council for Public Schools, the American Council of Learned Societies, the Ford Foundation, and the Robert Sterling Clark Foundation:

> We need to develop a more widespread habit of selecting comparing, and judging by means of visual analogies which will satisfy our desperate need to understand the new world. Education today is not visually-oriented. All of man's capabilities need to be developed through education. An articulate person is one whose concepts are clear. We need to better understand the unity of nature and the visual arts, to realize that improved visual perception can help to emphasize points of analogy, and to know that persons in all walks of life, not just artists, can be richly benefitted through art education.
>
> Out of learning to see visually may grow a form of art which is the literature of vision. Too many things we look at are taken for granted as they are known, but in reality they have not really been seen and hence have not been fully understood.
>
> In planning the workshop in visual perception, we asked ourselves such questions as, "How might people be helped to learn better through seeing?"; "What role might optical illusion as, for example, the effects of various adjacent colors, tones, and shapes, play in perceptual training?"; "How can photography be better and more extensively used, not only for improved perception, but also for such purposes as augmenting classroom records and evaluation?"; and "Have the vast numbers of visual images we see every day dulled or sharpened our vision?"
>
> The twenty-four secondary school teachers and administrators who were students in the workshops spent a portion of their time working as teams in the development of coordinated slide/tape essays on such themes as "The Depression Years," "The History of the Alphabet," "The Nature of Geometry," and "An Excerpt From Moby Dick." As an example of one of the activities in which students engaged during the workshop, rubbings were made of various surfaces such as brick walls and tree bark in order to better understand the nature of texture. We found that, in six weeks, people who had never fully used their eyes before could see, and that startling advances were made as well in students' expressiveness.

Fig. 69.—Seminar participant Joseph Turner with hollowed-out plasticene tower.

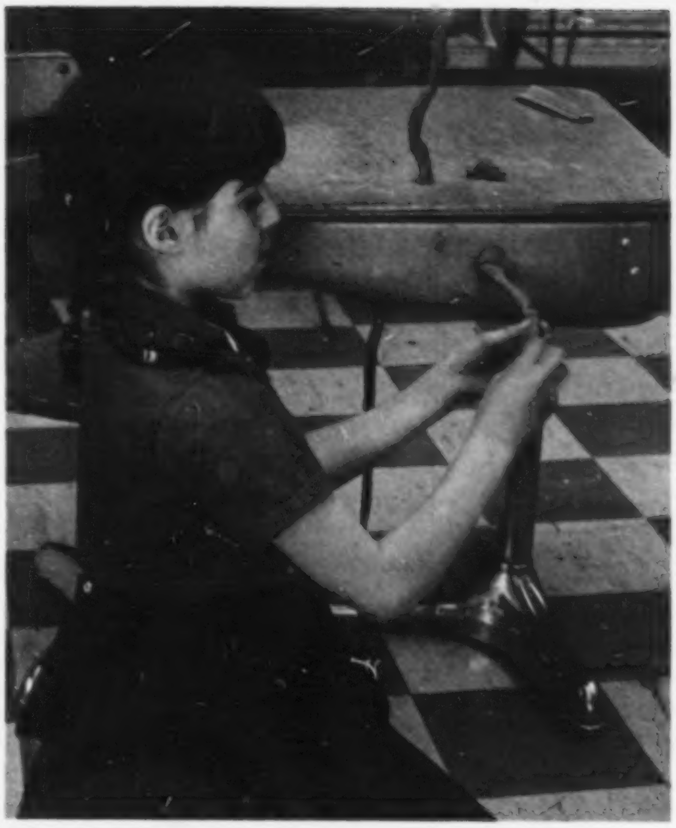


Fig. 70.—Child building "out" tower, with "up" tower and "down" tower. Courtesy Neal Mitchell, Jr., and Educational Services, Inc.

Fig. 71.—Eugene Grigsby modelling plasticene tower during Neal Mitchell's seminar presentation.

AN EXPERIMENT IN DEVELOPING PUPILS' AWARENESS OF STRUCTURE

Neal Mitchell described problems he and his colleagues at Cornell and Harvard Universities had encountered in the training of architects, and a resultant experiment in developing a sense of structural awareness in a group of elementary school pupils. The experiment with pupils had arisen out of: a combination of frustration in attempting to re-educate wrongly art-educated students of architecture; a sincere desire to bring high-level conceptual expperiences in structural theory to children; and an interest in finding out if a fresh approach to learning demonstrated by students' responses to experimental teaching might suggest means for more effectively art-educating college students.

Mr. Mitchell and his Harvard associates asked children in a nearby (culturally deprived area) school to experiment with clay in constructing various types of towers. He reported (and demonstrated by means of involving seminar participants in building tower shapes with oil-base clay):

> We set up a series of problems and we watched what happened. We didn't have pictures, we didn't have slides, and we didn't have a curriculum and the useless material that often goes along with it. But we did have the experience of giving children clay and asked, "How high can you build a tower?" We watched them interact with one another, not with me: they didn't care whether or not I was in the room after a while. The idea was not to *talk*, but to *do*; to let them experience moving things with their hands, to see how high they could go. Eventually they started coring the thing, and after the first lesson, we said, "Do we see any towers like this on the way to school." They said they didn't. But about the third time somebody brought a dandelion in and said, "Look, it has the same shape inside as my tower! It's hollow and I know why it's hollow because up where I made my tower taller I took the material out of the center."
>
> We had the children build "up" towers and "out" towers and "down" towers. We had them compile notebooks of pictures which they thought represented towers.
>
> We gave them a hunk of clay and said, "Can you divide it so that the "up" tower and the "out" tower and the "down" tower are equal in span?" And it was amazing, after these kids had worked with the material, how they could begin to feel, you know, how far, how they could divide each of these things.
>
> One little boy had a niche, a cavity in his tower, and I said, "Where do you think it will break?" He said, "It'll break there." I said, "Why don't you put more material there?" He said, "No, I want to see it break." The thing I found interesting was the fact that these kids *wanted* to see things fail, and then modify them.
>
> I carried them through a whole series of experiences like that, and I have the vague impression we were teaching them something about structure and that, more than anything else, we were getting them to really look at things around them. They saw trees, they saw grass that looked like towers they'd done. I think their comprehension of the way things behaved was important in giving their structure form. We wanted children to understand why one form is best, even though several forms could do the job.
>
> We went in with an idea to expose children to material to see how they would respond to material and what they

> would do, and we set up a situation where they were exploring. We wanted to see if we could develop an intuitive feeling in children which would help them respond. I don't think they were expressing themselves in the usual sense, they were expressing themselves within certain laws of nature. I don't think we were teaching art. I'm sure we weren't teaching engineering. We weren't teaching mathematics. But we were exposing people to a material to see what the material could do. We were exposing them to a problem.

AN EXPERIMENT IN TEACHING ART TO CHILDREN

One of the seminar participants, Rita DeLisi, was asked to give examples of experimental approaches she and her colleagues use in teaching art to children in Project, Incorporated, a privately-supported center established expressly for this purpose. Miss DeLisi first described an approach to the problem of heightening children's awareness of space:

> I was very concerned with the fact that people walk through spaces, they walk down corridors and in and out of rooms and very often they are completely alienated from any kind of dialogue with the space. They don't feel the space. They don't sense the space. The space is not threatening to them, conforting to them, or in some way familiar to them. They are just completely unaware of some of these basic things.
>
> So we tried to think of a problem to make a child begin to think of the fact that space can talk to him. We took some 2 by 4 boards which were 12 feet long. We placed them on a shelf on one side of the room, nailed them to the wall on the other, and made a kind of funnel shape that was about 2 1/2 feet at one end and 5 feet at the other. It made sort of a tunnel once we got it draped over with brown paper. We darkened the room completely so that we had this space which we had calculated to be a restricting space both for our youngest and oldest children.
>
> When the children came, the first thing we did was to talk about space to them. You know, they live in spaces, they have operating spaces; they sit in a certain kind of a chair and at tables and know that certain kinds of things are designed for them, because they are a certain size. We used their vocabulary. (We let them use their own words, whatever they say, and we use their words to talk to them so that we have something really alive in discussing things with them.) They told us of their experiences, generally about space, and then we said, "Well, let's think of a certain kind

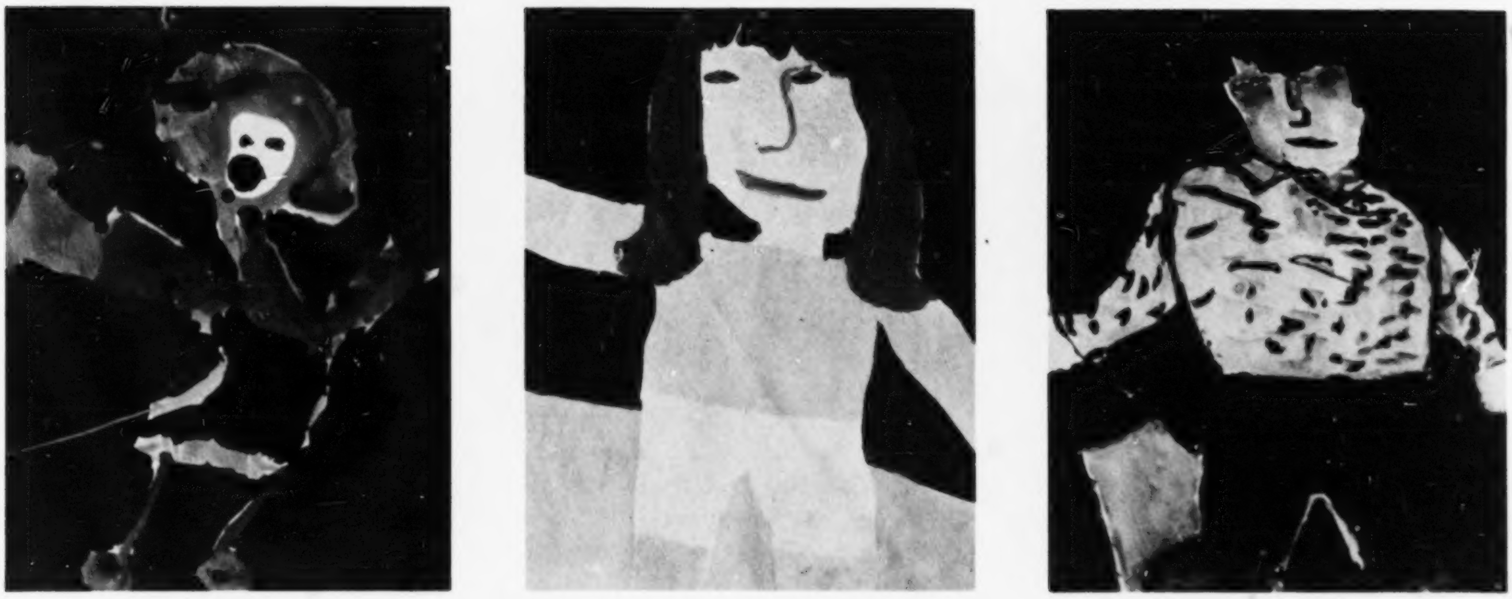


Fig. 72, 73, 74.—Children's interpretations of space awareness problem. Courtesy Project, Inc., Cambridge, Mass.

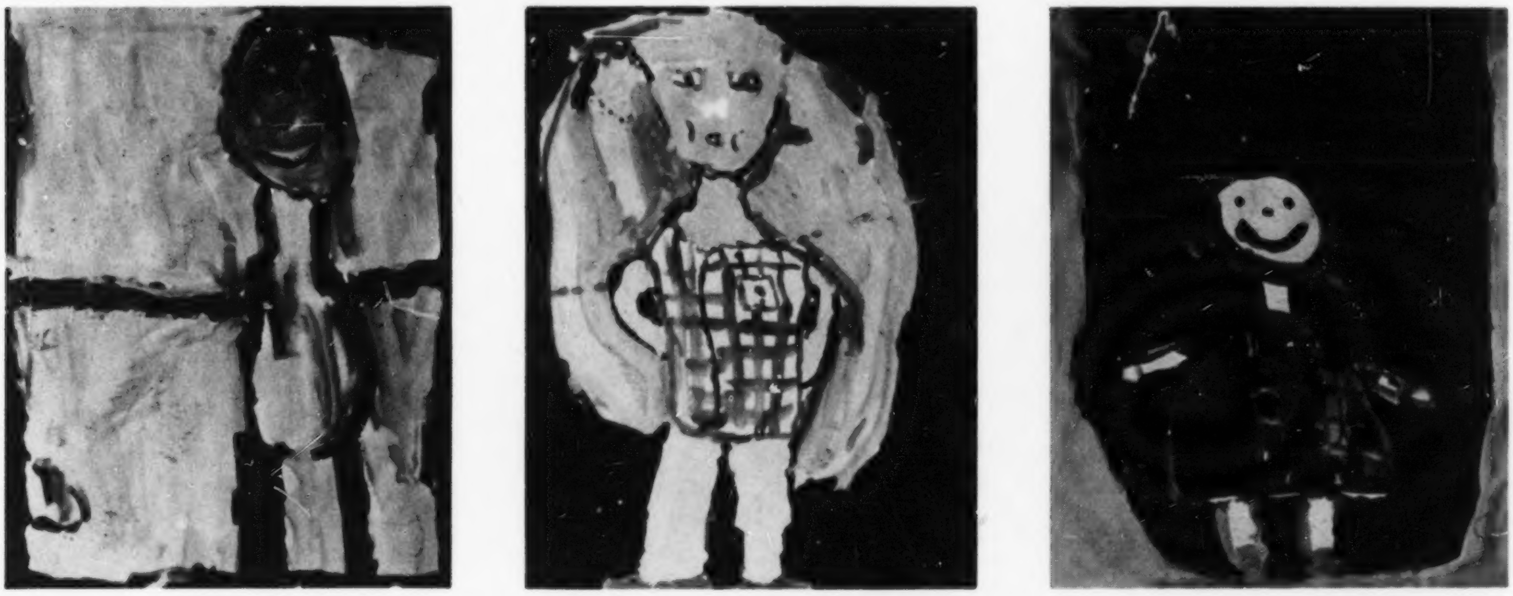


Fig. 75, 76, 77.—Children's interpretations of space awareness problem. Courtesy Project, Inc., Cambridge, Mass.

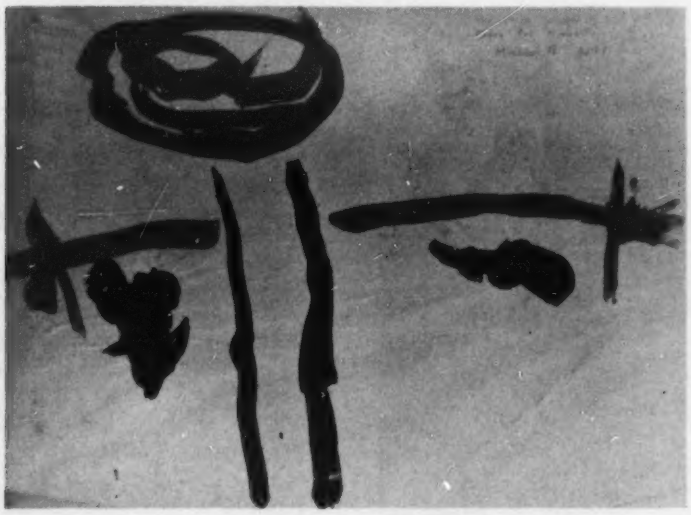


FIG. 78.—Painting by boy, age 5.

of space that probably all of us have had some kind of experience with . . . let's think of the smallest kind of a space that you've ever been in." Some children found the space reassuring. Other children found the space somewhat threatening. Some children found that they really had never thought of space. We just went around until everyone had, at least verbally, contributed some little bit of what we were dealing with. We told them that we had made a space for them - just a simple space. "It's nothing much, but we made you something, and we want you to go in there and we want you to really think about all the things you talked about. We want you to *feel* this space." We gave them a flashlight and they went into this space and were to find the point of constriction for each of them, and to sense it, to see everything about it and see that space was made of a certain material, there was a kind of dimension to it that they were going to feel even though they might have been in a restricted area. But it began to focus experiences which were not alien to them at their age level. We hoped it would focus their concept of space and that it would sharpen their concepts in other instances. I had my assistant helping them in with the flashlight, and they would go in individually. As they came out from the other end, I met them with a large piece of paper and I said, "Show me the point in this space at which you felt restricted. Can you show us yourself in this space?" And they went to it.

I think one of the dangers about teaching is that those of us who are used to doing some creative work ourselves very often can get into the habit of having an image of what the answer to a problem is, and this is dangerous because you should never have the answer to a problem until you've found what might be sixteen answers. And then you look at the sixteen answers, you see similarities and differences, and then you have the fullness of an exploration.

Miss DeLisi then described one problem designed to provide experiences necessary to develop basic concepts of urban design:

> You don't teach urban design as such, but try to provide a general awareness of the problems of urban design and its effects upon you and what you can do.
>
> I gave each child several little wooden blocks, and spread a large blanket out in the center of the room. We looked at it for a while, and then I said, "Suppose someone started moving into this big land that has nothing on it? You, first, where would you go?", I said to one child. To another I said, "You're moving in second. Where would you go?" To a group of children, I said, "Now suppose you're several people together. Where would you go?" "An apartment house," someone suggested. One child, who was really quite alert, went to the side of the room and put her block on top of the closet. "Out of town," she said.
>
> Then we said, "Now we've got to be able to get to each other. There are things we want to do, and places we will want to go." So we tore up lots of paper and I said, "Who do you want to visit?" One child asked, "Where are you, Charlie?" Charlie said, "I'm over here!" And the other child put down a strip of paper which reached Charlie's location. One girl said, "The heck with the road that goes someplace. I'm going to make a road that I would just like to go on." We said, "Terrific! We need roads that we just like to go on, and we also need roads that take us someplace."
>
> After working together to focus their experiences, the children left the group and worked individually, using media that helped them to explore the problem. What the children end up with is not a fantastic model of a city. They only have little bumps here and there and little roads here and there, and what we talk about is looking at the little bumps. Do these bumps have anything to say to each other, or is there a big one that doesn't have anything to say to the others? Sometimes they start talking about the Prudential building and what not. This is how we go about it.
>
> What I think they get out of this more than anything else is an idead of scale. That's exciting. For the first time, a child who has never been in an airplane says, "Hey, that's a little city and that little piece of paper is thirty or forty square miles and I made it!"

In another seminar presentation, Miss DeLisi described her approach to the subject of light:

> Recently I was talking with an architect who was designing a building and was concerned about the deadness

of an evenly lighted wall. He was exploring the idea that "life" comes to an unrelieved wall when it is played upon by light. I wanted to find a way to involve the children in the same exploration.

In order to do so, we first built a simple device made of two big cardboard boxes, which we called our "light machine." We got a light bulb, and made a hole in the top and a hole in the side of the box. The children could move the light back and forth and control how much light could be let in. It could be a full light or a very limited light. We didn't know how it was going to work. I didn't know whether the idea was too complex for the children, but I decided to try it anyway. What I did first was to discuss light and space at the level of the children, but with as much intensity as their experience would permit. We discussed whether we'd ever seen anything which sunlight made more complicated, and whether we'd ever seen light reflected on a wall that was painted only one color. We talked about how your eyes travel over an evenly lighted wall quickly, and whether we ever saw a wall that was organized or broken up by reflected light.

I had a big sheet of paper which I put at the bottom of the "light machine." Then any child that wanted to could put obstructions between the light and paper. They moved the obstructions around until they felt the organization was better, and then we talked about it. I said, "Let's see if we can really explode that space—let's see if we can really make things start working together!" Then I said, "Let's look at the edges. Are the edges of light like the edges of cut paper? Are the edges of light like any other edges you've ever seen before? Are all the light spaces reflected on the paper the same brightness, or can you see changes in the light?" Then we talked about the possibility of trying not to see the obstructions, of trying to forget about what got in the way of the light. We talked about thinking of the light as if it were "painting" the various shapes they saw reflected. We tried to look at the light as it made designs and tried to forget the kind of image that we would identify with the obstructions that forced it to take a certain pattern. Some children told me that you couldn't tell what the obstruction was, once you did that; that once you started looking at the light, once you started examining it and feeling the edges, you lost the sense of the obstructions.

The children then were provided with the time and material to pursue the problem alone. Paint and paper were available for them to use. They were asked to think of what they saw either here or at some other time that they remembered seeing light playing on a flat surface, and to see what might happen if they tried to paint their impression of it.

> We said, in effect, in giving them their paper, "This is your big wall," or "This is your floor. Make believe you're the light. How would you divide it? Try it and see what happens."

CONCLUSION

Following their analyses of and reactions to prevailing conditions in the arts in contemporary society and education, which they unanimously agreed were predominantly negative and often deplorable, but which in more recent experiments show bright hope for the future, seminar participants turned to discussion group considerations of the nature and meaning of education in the visual arts, feeling this to be an essential preliminary to the formulation or receommendations for improvements. Statements of their beliefs on this subject comprise the content of the chapter which follows.

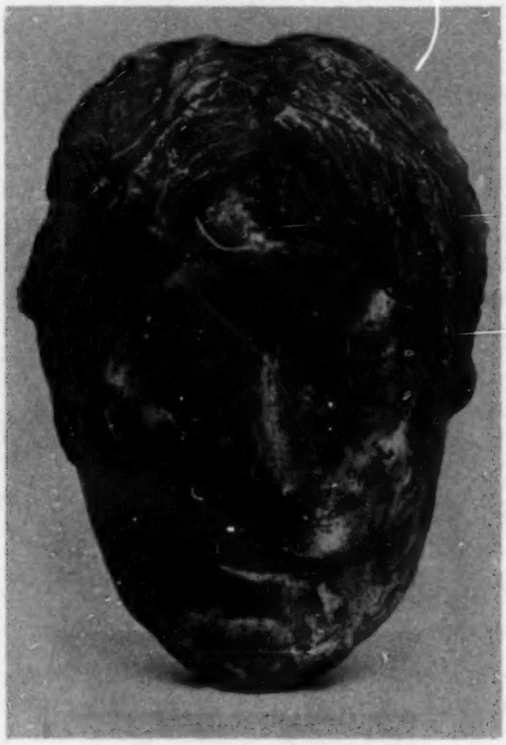


FIG. 79.—*Portrait of Esther,* 1956, bronze, life size, by Leonard Baskin. Courtesy New School for Social Research and Grace Borgenicht Gallery.

Chapter III

THE NATURE AND MEANING OF EDUCATION IN THE VISUAL ARTS

Following a careful assessment of the present condition of the arts in contemporary society and education, and based upon the increasingly apparent conclusion that nothing less than sweeping reform and extensive reconstruction in art education would significantly remedy the predominantly negative situation, seminar participants decided that a fresh as well as sound and necessary basis for their recommendations would be a fundamental, "grass roots" examination of the essential nature and meaning of education in the visual arts.

It was strongly felt that art educational reform and reconstruction should be solidly based upon profound conceptual foundations in art, education and in related academic disciplines, and not upon prevailing art educational practices.

The scope of the visual arts to which seminar participants addressed themselves was regarded as inclusive of all modes of art expression, all products of such expression, and all historic periods, including the present. The media of the visual arts were taken to include drawing, painting, sculpture, the crafts, architecture and interior design, printmaking, advertising design, industrial design, still-photography, and cinemaphotography.

ON THE NATURE AND MEANING OF THE VISUAL ARTS

Though, as one would expect, opinions on the nature and meaning of the visual arts were extremely varied; and even though it was felt that art cannot as such be verbally (or perhaps otherwise) defined, there was considerable support for (though there was also some opposition to) the following expressions of personal belief:

> *Anthony Smith:*
>
> I assume art to be a recognized part of our culture, and I do not believe it is necessary to define it. Our concern should be to extend the boundaries of art beyond painting and sculpture. I don't think of art as a product, or as something comparable to a commodity. I don't think art is necessarily transportable, or that it's necessary to be able to traffic in it, or to put it in a museum, or even to be able to photograph it.
>
> *Victor D'Amico:*
>
> If you define art for any artist, he is going to change it. The minute you define art precisely, the artist is "dead;" he is not even listening to your definition. He is, instead, thinking of how he is going to change your definition, and get out of it.

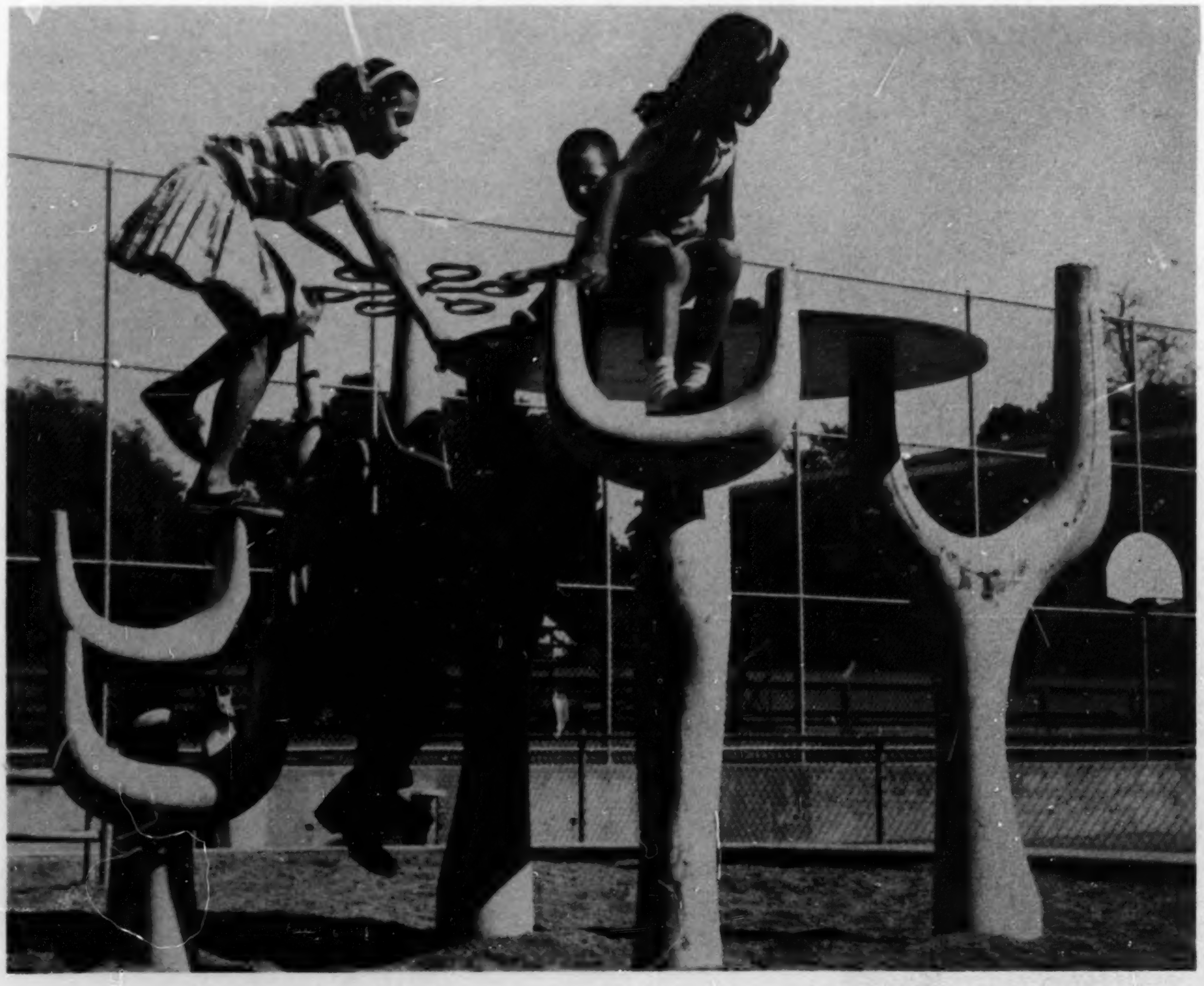


Fig. 80.—Playground sculpture designed by Nelson Van Judah for Creative Playthings, In

Harold Rosenberg:

Our concern should be with the art that is produced by artists, not the art that is produced by nature, or art that is produced accidentally, or the forms that you see in the microscope. And I protest against what I consider to be the assumption that there is a "correct" or "right" way of producing art.

We should not forget the "madness" of human beings as such. What many people are trying to do is to suppress the very thing that we count on to make them free individuals.

There is too much preoccupation with rationality, with the working out of problems, with the functional process in dealing with materials. The question of art is rather involved with achieving a creative condition. As Brancusi once said, "It's very easy to create. The difficulty is to put oneself into the condition in which one can create." I get annoyed when I see stereotyped art work imposed upon children. If somebody made me do that, or induced me to do it at the age of eight, I would have been bored to death! When I was a kid I would shoot pool, and I discovered that all of a sudden one could make the most terrific shots! This was my first real "art" experience. I was playing a pretty crumby game—you're a mediocre pool player, but all of a sudden

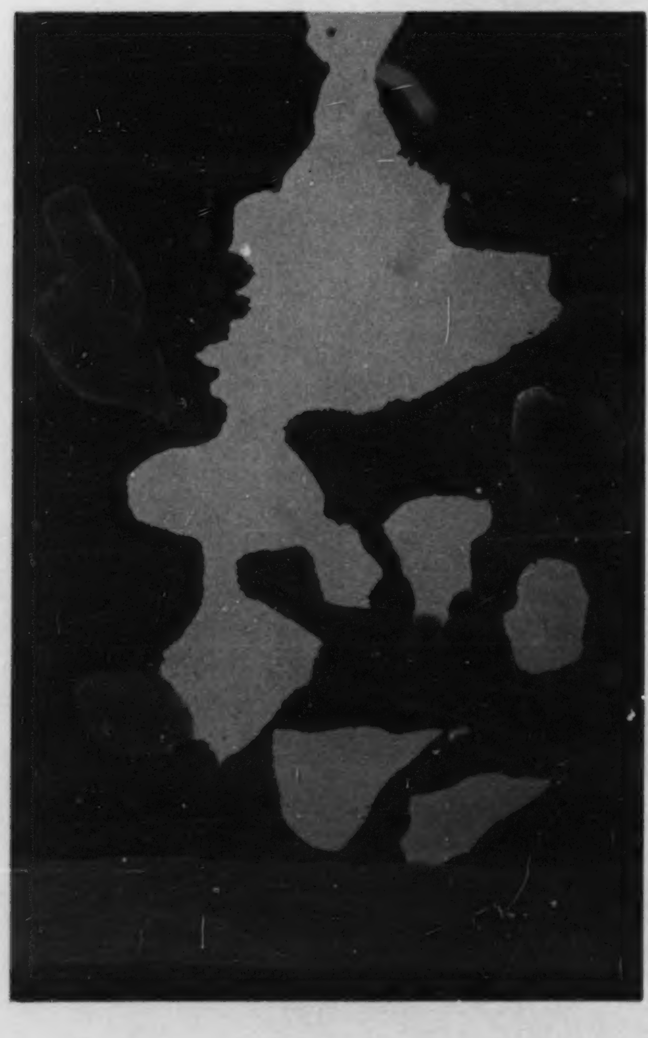


Fig. 81.—*Saturn Revisited,* 1964, oil, 86 x 54", by Helen Frankenthaler. Courtesy Andre Emmerich Gallery.

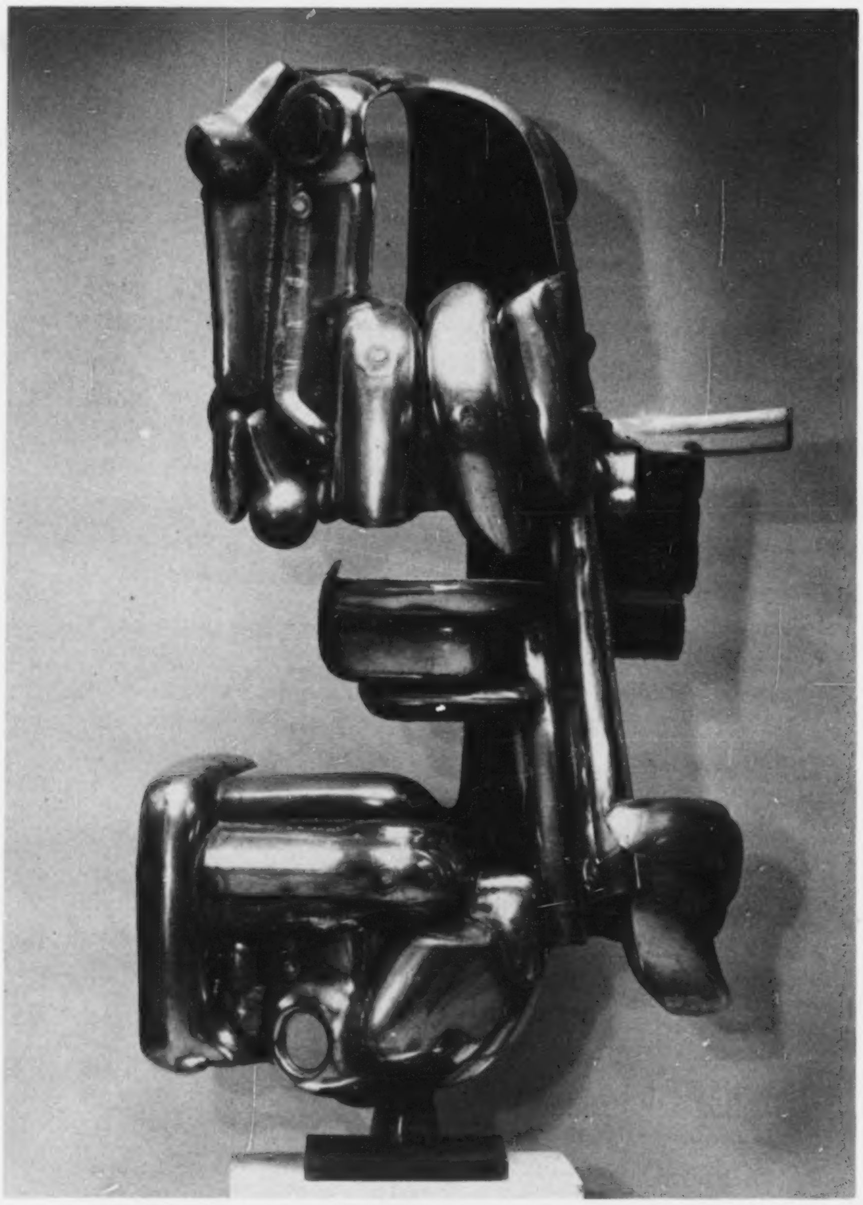


Fig. 82.—*Magnus Magister 1334*, 1963, welded chromium plated steel, 6'10" x 4'3", by Jason Seley, Courtesy Kornblee Gallery. Photo by Charles Uht.

you're inspired and every ball seems to be going right to the pocket. That continues for about three or four minutes and then it vanishes. Those inspired states are what we all look for, what we live for!

Let's not forget the conditions with which art is involved. They arise in all forms of human creation. There is all the tiresome business of work; but there is also the ultimate point at which you can start and are able to do it well.

The development of the artist is largely negative: it is a matter of the elimination of obstacles. This is an intrinsic idea. Removal of obstacles is intrinsic in democracy too.

So we're involved in a search for miracles. It's the only thing we can really depend on. Miracles are bound to take place—unless we prevent them.

Art competes with madness. It always has; it belongs in that world. The relation has a long history. There are volumes on it. The Greeks had the idea that all artists were possessed. History shows that the early Greek poet, when he invoked the Muses, did it literally!

Twelfth century buildings were "angelically" conceived. But today, craftsman-like work and the craft of the Middle Ages are lost to us. The mystery of how the angels used to work with craftsmen in the twelfth century we can study only as an historical phenomenon. We can't reproduce it. If we want to be angelic, we have to be angelic as individuals. Angels have changed their character.

The artist of today creates from moment to moment, he goes up and down, and that's what we're talking about. We're talking about going up and down and not remaining on a certain level where you come in at nine o'clock and produce a work of art!

There is always a tendency to try to teach art in a manner that is "correct," which removes it from the consciousness of the student. He has the idea that somewhere there is a "right way" to do it, and he never seems to get to it. If he does, he's already ruined it.

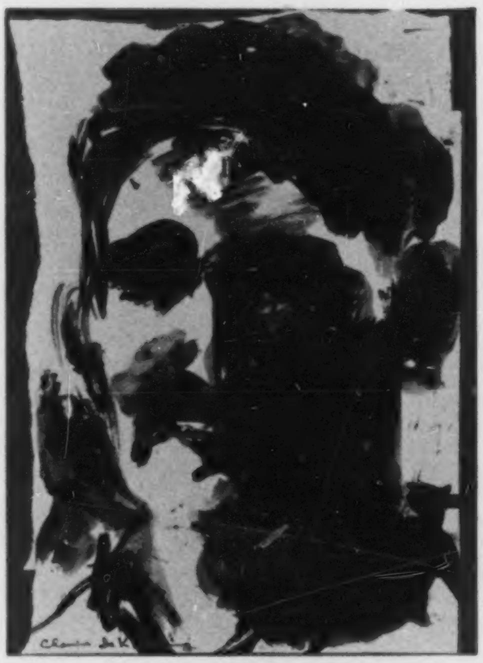


Fig. 83.—*Harold Rosenberg*, 1960, ink and brush, 19 1/2" high, by Elaine de Kooning. Courtesy New School for Social Research and Graham Gallery.

The artist is basically at the center of things. You can't talk about art without talking about the artist. It was possible, some hundreds of years ago, to talk about art without talking about the artist; but today it's impossible. When we talk about art we're talking about the artist's experience. We're not saying whether it's good or bad, but we want students to know what it is. But we don't really know how they are going to know what it is. This is a built-in contradiction which we can't resolve or handle with a definition as a reply. People see, feel, and become sounding boards for their development, in a physical sense. But are they able to apprehend modern culture and modern civilization? Art is one of the few authentic, immediate, forms through which the individual can experience the modern world. We have many other ways in which the individual can experience the modern world; but they're usually ideologically formulated. In art, the individual as artist, and the individual as spectator, communicate about the modern world without any preconceived systems of ideas. This is the only way that we have of communicating today.

Take any form of communication: the moment it begins to reach into an apprehension of reality, art becomes inescapable. In fact, that is in one sense the main characteristic of modern art. The artist does not start out with an aesthetic objective: he arrives at an aesthetic result. You will find it said over and over again by the best artists. An artist who's any good will tell you that he is pursuing reality.

The artist is always denying art. If we start with positive ideas about art, we're going against the artist. The artist wants reality, and I think he's right, and that's why it's important that children should study visual perception from the age of six. They should not neglect the fine arts with all of their negativity and ambiguity. Art education must be one elongated package.

Robert Motherwell:

As a painter of long experience I am still faced by many problems with which I think I'll be faced until I die, such as, what is art, what isn't art! But the actual fact is that anybody who's working actively in the cultural field is working with say Matisse in his mind, and Rothko in his mind, with Max Ernst in his mind, and profoundly admiring the work of such persons, which is to say that painting is not only an outpouring of one's hatreds and loves, it's also a specific orientation to the existing culture of one's era.

Actually, it is when people are oriented very alike, and are passionately addicted to the same things, that real excitement takes place! There's only one guarantee of authenticity, and that's the quality of a man's expression.

d'Arcy Hayman (in response):

Many people think only of painting and sculpture when they talk about art. Not only in this seminar, but throughout the world there are individuals, groups, and cultures to whom art is much more broadly conceived. And there are, of course, many other qualities in art besides those which are sensual and erotic (to which Mr. Motherwell had earlier referred—Ed.).

George Segal:

In our consideration of the nature and meaning of art we often tend to forget focus, concentration, associated culture, philosophy, and psychology. No artist or work of art stands isolated from words, from ideas, from discussion, from form in all other areas.

In ancient Greece, philosophy, mathematics, and science were interwoven with architecture, sculpture, and drama. The profundity of Greek art was as broad and deep as the profundity of Greek philosophy, mathematics, and science. And men are born in every era, in every generation, with similar integrative powers, with irrepressible aesthetic hungers, with latent artistic abilities which create the possibility of making totally new configurations, of producing works of art which capsule the highest achievements of their time. Essentially, human "material" doesn't change; its potential is infinite. If we want to become a great nation, we must be concerned with a much larger totality than competition with other countries, the advancement of science, and the control of environment. In all that we do, we should be concerned with the *total* needs of human beings.

Howard Conant;

Great works of art suggest the teleological order of the universe. They are deeply involved in expressions of the human spirit and with interpretive portrayals of the nature of matter.

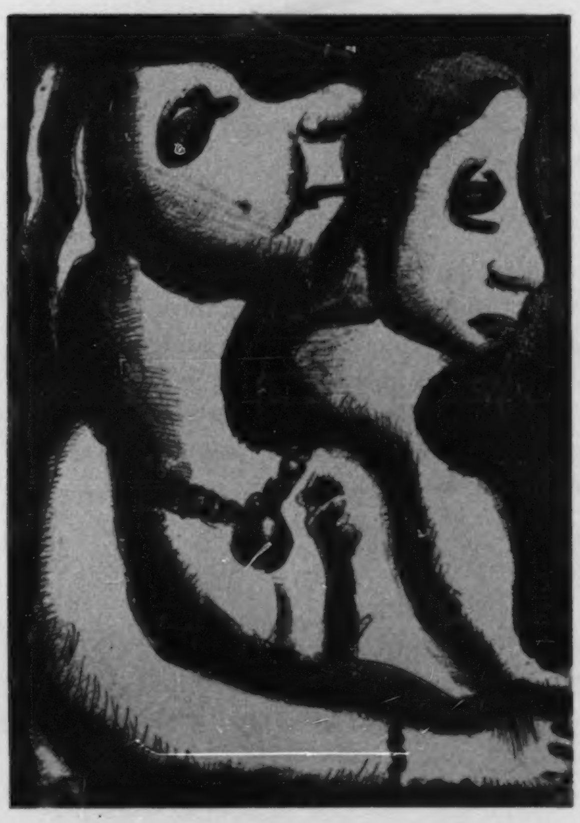


FIG. 84.—*Two Women in Profile,* etching, by Georges Rouault. Private Collection.

Philip Stapp indicated strong support for the aesthetic position of Ananda Kent Coomaraswamy, who said:

> The basic error in what we have called the illusion of culture is the assumption that art is something to be done by a special kind of man, and particularly that kind of man whom we call a genius. In direct opposition to this is the normal and humane view that art is simply the right way of making things, whether symphonies or airplanes. The normal view assumes, in other words, not that the artist is a special kind of man, but that every man who is not a mere idler or parasite is necessarily some special kind of artist, skilled and well contented in the making or arranging of some one thing or another according to his constitution and training.*

ON THE NATURE AND MEANING OF ART EDUCATION

A similarly wide range of opinion concerning the nature and meaning of art education was expressed by seminar participants; although here too, with some exceptions, there appeared to be general accord on fundamental principles.

> *d'Arcy Hayman:*
>
> If, by education, we mean the systematic development and formation of the intellectual, spiritual, and social potentials of individual members of the society of man, then we must come to understand the unique role and contribution of the arts in general education. It is now generally accepted that two of man's "languages", words and numbers, must be studied and learned by all members of the human community if they are to be truly educated, for it is known that these basic symbols are tools requisite to human development and progress. What we are only beginning to see is that there are certain realms of human experience and imagination that cannot be adequately expressed, documented, or communicated by these two established symbol-fields. Only recently, we have begun to suspect that the dreams, intuitions, fantasies and spontaneous feelings of human beings may contribute as much to the forming of the human response to environmental stimuli as do the pro-

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* Coomaraswamy, Ananda Kent, *Christian and Oriental Philosophy of Art.*

cesses of "logical thought" duly disciplined by an education in words and numbers. If this is true, if man's actions are the result of an ubiquitous field of passions, inspirations, and insights heretofore uncharted and unexpressed with the limited tools of his academic learnings, then it is the urgent task of education to re-evaluate itself in light of these new discoveries.

Art forms are some of the most effective symbols with which man can express his ideas and feelings: they are symbols through which man can communicate with himself and other men. Visual art forms are as old as man, and they have been the natural manifestations of the spirit of man in all places and in all times. The deepening humanization of man in society has always depended upon his capacity to turn personal experiences into symbols, and to apply these symbols to other life experiences. In our age, when the development, perhaps even the survival, of man depends upon full and successful communication between one man and another, one country and another, one religion, one ideology, and another, we cannot afford to overlook or neglect any idea into which the family of man can be brought into closer touch with itself.

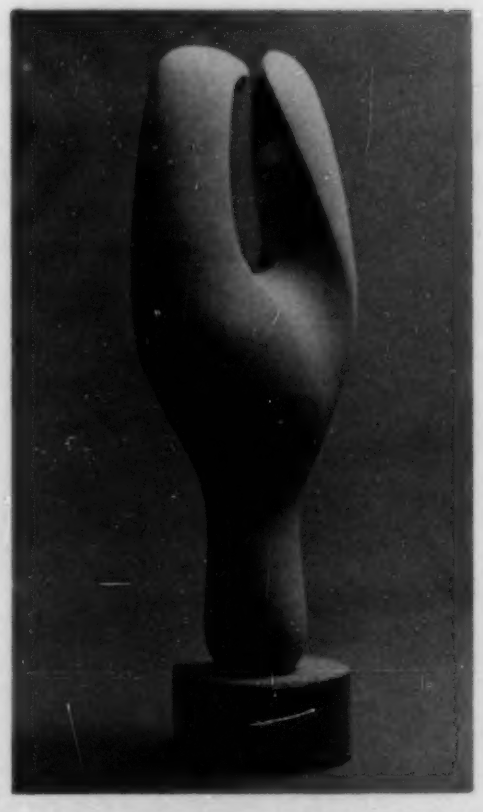


Fig. 85.—*The Germinal*, marble, 18" high, by James Rosati. Courtesy Marlborough-Gerson Gallery.

The importance of the place of the arts in education seems quite clear. How the arts should become part of the general education of all men is, perhaps, less clear. But if we think of art as a natural "language" of man, it may be that we must teach it *as* a language, as a *living language*. This suggests that we must offer early opportunity for the spontaneous and natural love of the "art language" through association as well as through freedom and encouragement of expression. We must present the tools and foster the skills of the "art language" so that as the child matures in his ability to use his visual language, his means of expression becomes more subtle, intricate, varied, and profound. And all the while we must make known the ways in which other individuals and other groups have used the language of art, have spoken eloquently through it, have altered and enriched and expanded our visual landscape in an endless variety of ways, and have opened our lives to new experience, new vision, and new fulfilment.

The art teacher, of course, must deeply know and feel the language of art, and he must teach with it and through it. We are living at a time when education is making more and more use of visual images in the teaching of all subjects. Surely the teacher of art has a great responsibility to make use of all possible visual media. He must also invent new visual media to be used in his own teaching, and should share these inventions with other teachers. Students can enter into the valuable experience of creating and producing this visual material. The art teacher's thorough knowledge of the art language through his personal involvement in the arts is of great importance; but his love of art, the art of others, is of equal value. Just as the inspired teacher of literature must know and love the world's great literary works, and the science teacher must be conversant with the major scientific theories, so it is the duty and privilege of the art teacher to have an intimate understanding of and respect for the world's art heritage, and to impart this knowledge and respect to others.

One day, let us hope in the not distant future, we will come to realize that "aesthetic literacy" is the right of the educated man, just as education is the right of all men.

Harold Rosenberg:

Art education provides a unique means for developing the capacities for experience, experiment, and equilibrium needed by individuals to cope consciously with the novelties, tensions, and rapidly changing conditions of our time. A close familiarity with artistic creation and with the processes of production should be a major part of the education of every child from earliest school attendance to his maturity.

Our problem is in some way to elucidate what we mean by art. I have said we can't, but we must keep trying to do it. We must ask "what is the area of interest of art?" I say that it is a subjective area of interest. Art is free work. If it's free work it means that it's work done for the worker. It's not work done because there's a social function for it. The minute we introduce the idea that it's being made in order to get a good mark or in order to sell it, we're involved with craft. If art education is treated as a completely objective thing, that is, as the study of how to make by hand certain types of objects, which have been or could be produced by a machine I think many practical persons are bound to reach the conclusion that such things might be done better and cheaper and on a mass-produced basis by machine, such a person will ask about art education, "why bother with it?"

Related to art education in general is a critical problem of professional painting and sculpture: as soon as a style is established, work in that style starts being turned out as in a craft. On the other hand what we have known as craft is becoming more and more like painting and sculpture. People who are now making ceramics and other craft objects are seldom interested in utility. They're making these things as a means of self-expression or self-development.

Anthony Smith:

There's a great deal lacking in our culture: I cannot see a means of providing what is lacking except through the process of education.

H. Harvard Arnason:

Perhaps only one percent of the students we attempt to art educate will become professional artists. Yet, the chief emphasis in art education is placed upon personal creative productivity rather than upon the development of an aesthetic awareness of the works produced by outstanding artists of the past and present. And we are probably not even providing adequate or appropriate training for the "one percent" who may become professional artists.

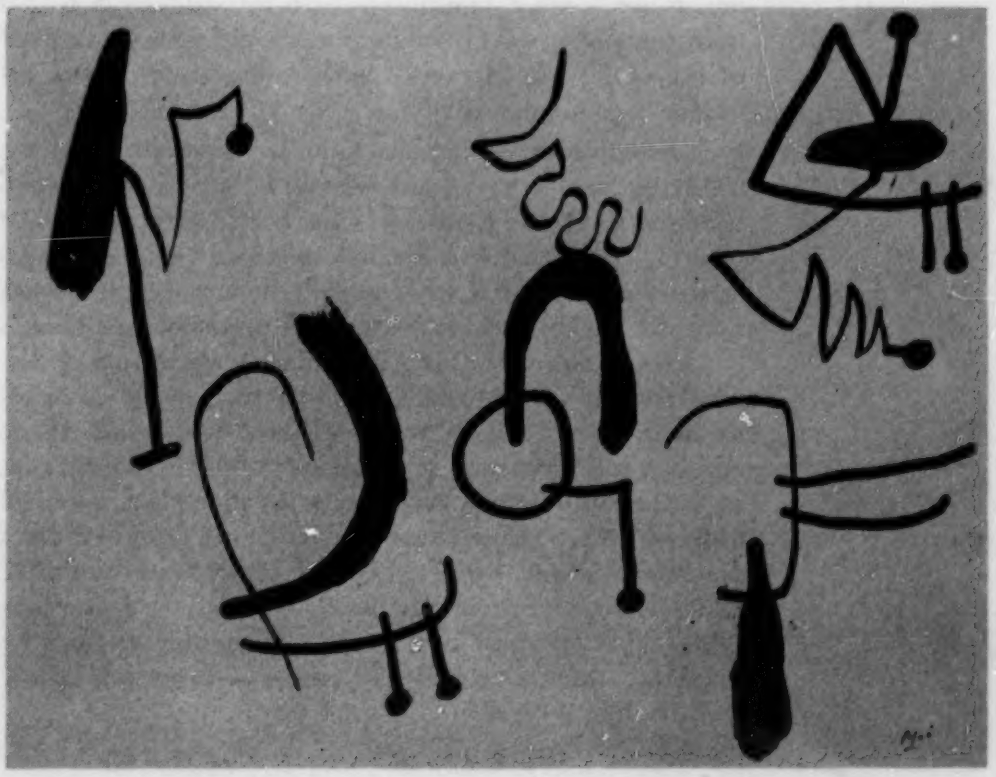


FIG. 86. – Untitled gouache, 1959 20" x 26", by Joan Miró. New York University Art Collection.

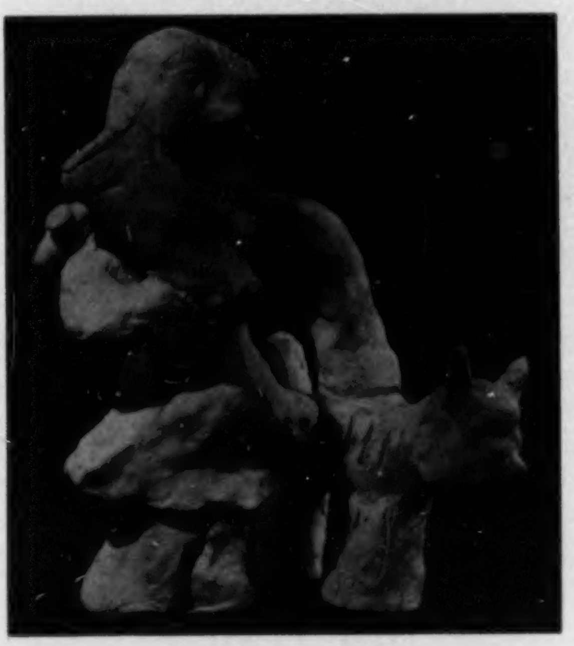


FIG. 87.—Ceramic sculpture by 4th-grade girl. Courtesy Midtown Ethical Culture School, New York.

Neal Mitchell:

I don't think everything has to have a name. I don't think there should be a pigeon hole for every little thing. I don't think we should ask "Is it art or isn't it?" I think the main thing is that what we have traditionally thought of as art should be broadly expanded.

The sciences are now being stressed not because of legislation, but because of desire. People in the sciences have created a series of circumstances, a series of problems, some things that when exposed to children become terribly exciting, and are really wanted by them. I don't think we can legislate art. We can say, "art is good." But we must make it exciting, wanted, if we expect it to become an essential part of the total school curriculum.

Kathryn Bloom:

I think that defining art education is terribly important. It's just as dangerous to say "Let's not define it, let's just go ahead and do it," as it is to put things in categories. I think if I had to say what we were trying to do I would say we are trying to give children the very best in art education regardless of their age. I think we should get rid of the junk and gimmicks and give children materials that are real artist's materials, put them in a situation where they can work, provide them with teachers who can guide them without directing them and who are really good. But we have to have a type of communication which is not only visual but verbal, which can be widely understood by the general public.

It's easy to talk about the social purposes of art, the importance of art in, for example, improving living conditions in slums, but the important point is that, with proper stimulation and guidance, art, real art, can emerge in all kinds of social and educational situations.

THE COMPARATIVE ROLES OF EMOTION AND INTELLECT IN ART EDUCATION

One of the major issues evolved during the seminar centered about the roles of emotion and intellect in art education, and the comparative value of emphasizing the development of one or the other, or both. Some participants argued strongly for greater stress upon emotional response and expression in both the study and practice of art; others believed this approach to be too soft and fuzzy-edged, thought it relied too heavily upon "unteachable" intuition and feeling, and urged that greater if not exclusive consideration be given to intellectual development; while some felt these and other elements of human behavior were inseparable in art education as well as in other disciplines.

Closely related to the "emotion and/or intellect" issue was a recurring and occasionally heated discussion of the relative value of creative art expression (sometimes loosely, sometimes intentionally, equated with emotion), the study of art works by important artists of the past and present (sometimes equated with intellect), and the application of scientifically-oriented, precisely-structured, visually-perceptive (but not necessarily "art") experiences in educational programs. While no unanimity of opinion on this issue was attained, a careful analysis of plenary session and group discussion proceedings indicates a majority preference for an "integrated" position, with varying emphases placed upon one or more of the aforementioned elements.

The following excerpts from conference tapes more precisely indicates the range of expressed opinion, and describes more exactly how some participants saw cluster relationships in emotion, intellect, and other elements of human feeling, thought, and action.

Arguments in Favor of a Stress Upon Emotional Development

Favoring an emphasis upon the intuitive or emotional bases of art expression and understanding were the following:

> *Friedel Dzubas:*
>
> There are two large, separate frameworks: one deals with the condition of man in our times; the other deals with what we can do to enhance or deepen man's feelings about aesthetics, about the feeling that is in art.

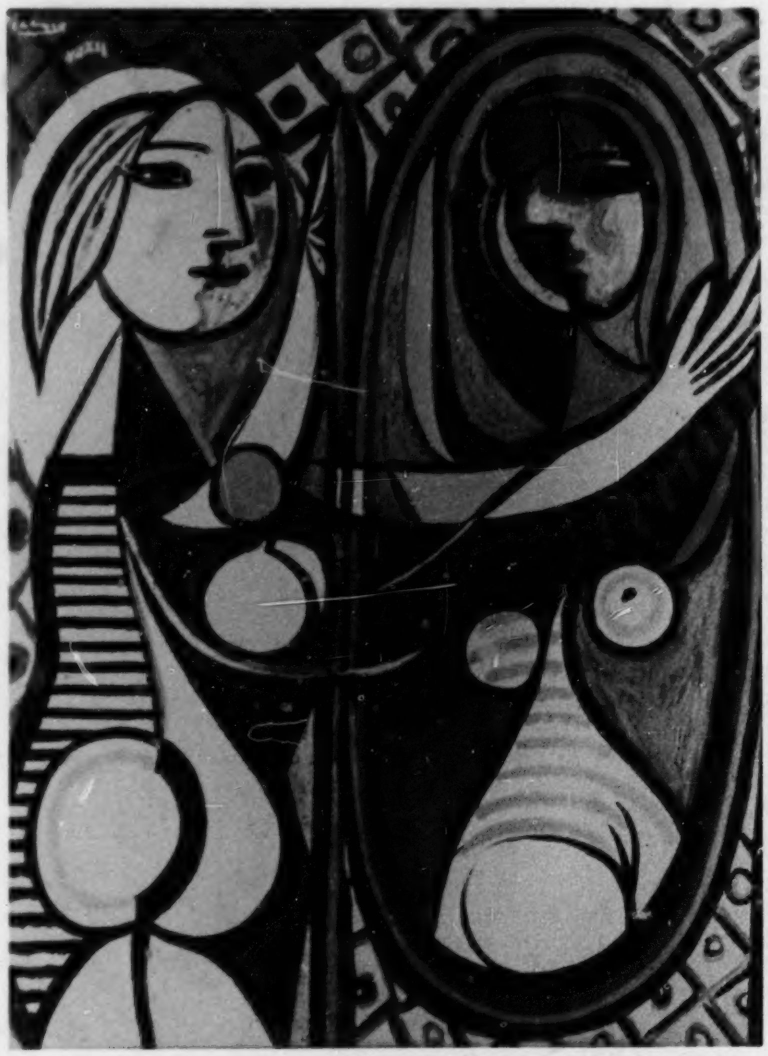


FIG. 88.—*Girl Before Mirror,* 1932, oil, by Pablo Picasso. Courtesy Museum of Modern Art.

Robert Motherwell:

Beginning with Kant there has been, if not a definition of art, a concept that many modern people would agree with, and one which in my opinion painters and sculptors and architects in general can really work within, which is to define not art but the domain of the aesthetic. The particular guardianship that I would say artists, art educators, art teachers, and pupils have for the field they are operating in, is for the domain of the sensual, the sensuous, the sensed, which is to say, the world of feeling. There are many things we must do, things that are not generally relevant to other fields, and I would say that the ultimate value of what we're involved in, is the degree to which the world of sensed feeling is extended, refined, internalized, and incorporated in every human individual. The capacity to compose is really the capacity to give coherence to sensed experience.

George Segal (in response):

I think something else is at stake that has to do with the multiplicity of solutions, and the hopelessness of making a definition of art or determining the range of

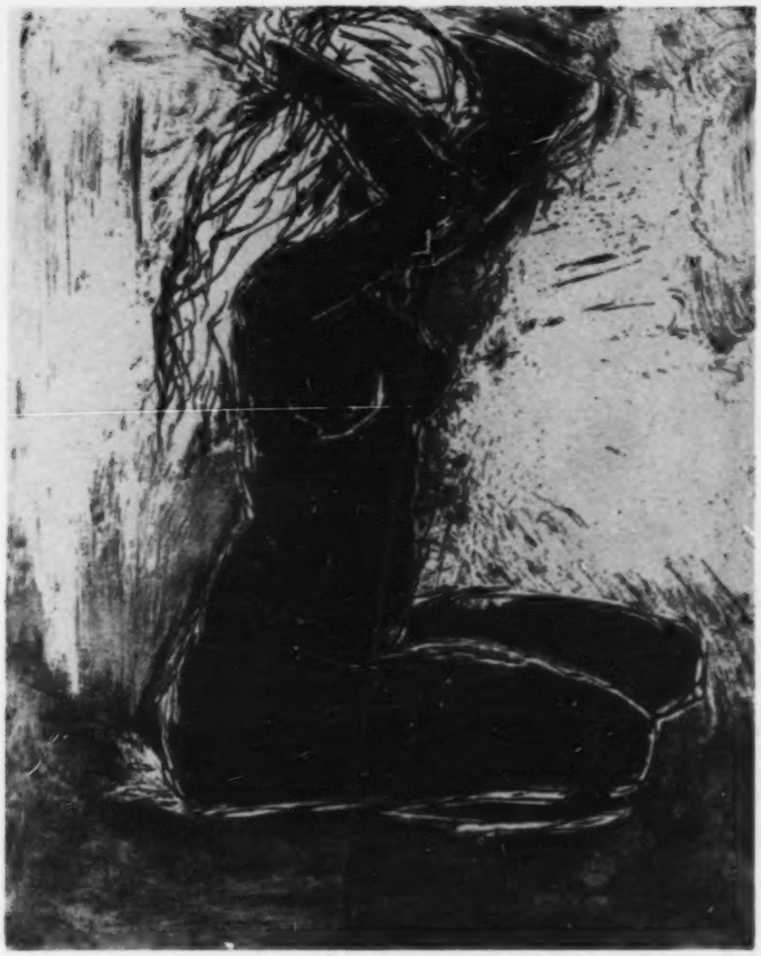


FIG. 89. —*Seated Nude*, etching and aquatint, by Emil Nolde. Courtesy State Graphic Collection, Munich.

aesthetic concern. You may feel very strongly that aesthetics is solely in the realm of the sensory. But I am concerned with my internal sensations as they operate against what I sense to be external to me. All the materials in the external world can be art materials, and have their own kind of expressiveness which I discover and can evaluate and incorporate into my own work.

Robert Motherwell (in response):

No, only when made sensual. I mean exactly the way the world is felt as what it is, the way black feels as black, which projects a whole kind of inner discipline.

George Segal (in response):

I don't think you know where the sensation of black came from. You assume that it's external to you and you're dealing with it externally on your canvas, but primarily it's an emotion to you. Suppose I shift my emphasis slightly and say "Here's the boundary of my skin; I have internal sensations; there is something external to me; and the work that I do is going to be a play between those two forces." If I accept that as a beginning premise, then I can accept the existence of Pop Art in New York in 1964. The possibilities of modification are infinite.

Robert Motherwell (in response):

I'm fully in accord; but nevertheless there are things that get outside the realm of the aesthetic. I think that the points I would choose to emphasize in art education as a crucial problem is that it is the area of the sensual, which is not only the interaction of your skin and what you're experiencing outside, but it's also your knowledge of what your aesthetic culture is doing at a given moment.

Robert Osborn (in response):

I think it would have been a great tragedy if we hadn't heard Motherwell say what he did. I, as an artist, agree completely with everything he said. I don't feel the intense quality of art in the descriptions I've heard of on-going art education programs. I can't tell you how heartening it is to hear a man just get up and talk clearly about the real essence of art, about its primordial, sensuous, and profoundly and intimately human qualities. If we want to improve art education, we need to understand what art really is, and we can best learn this from leading, brilliant, and eloquent persons like Robert Motherwell; and not just painters, but filmmakers, urban designers, architects, and creators of outstanding works in all branches of the arts.

Rita DeLisi (in response):

What we're discussing here is the lack of our own ability or our students' abilities to develop the kind of sensitivity that permits one to really "see" a visual statement and to become personally involved. Pupils, and many teachers, lack the "language" to "read" visual statements. As far as I can see, someone else could be sitting next to me other than Mr. Motherwell and say the same thing but be a weak painter.

Robert Osborn (in response):

That's not true! Willem DeKooning would draw upon exactly the same thing.

Rita DeLisi (in response):

I'm not saying that. That's not my point. My point is that Mr. DeKooning can also make his statement visually and sensitively. But they've got a thing that's alive and apart from them when they're finished with it. Mr. Motherwell has something that's alive and apart from him. I couldn't care less if it were Motherwell when he was finished with it, if it says something to me. What I'm trying to say here is what is it other than his ability to make a personal statement from this sensual source that he's describing. What is the intangible thing which maybe can be taught? Why can't you provide rich visual experiences for a child and, at the same time, keep his feelings alive?

Robert Motherwell (in response):

I think what Miss DeLisi is saying is very dangerous, from the standpoint that I think it's questionable whether anything else than art as *art* ought to be the subject-matter of art education. Personally, if I were submitted to anything less than the kind of involvement with art I have advocated, I would leave art school immediately. Obviously not everybody is as sensitive, intelligent and talented as everybody else but there is a place here where I think the distinction between the true and the pseudo should be introduced, and I would guess that the pseudo is most operative in art education today.

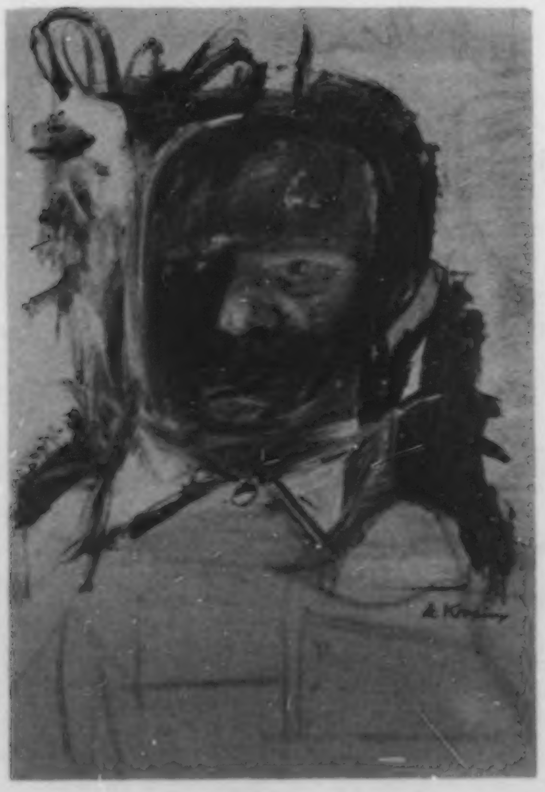


FIG. 90.—Portrait of Dr. Jack Greenbaum, oil on canvas by Willem De Kooning. Collection Dr. and Mrs. Jack Greenbaum. Photo by Adolf Studly.

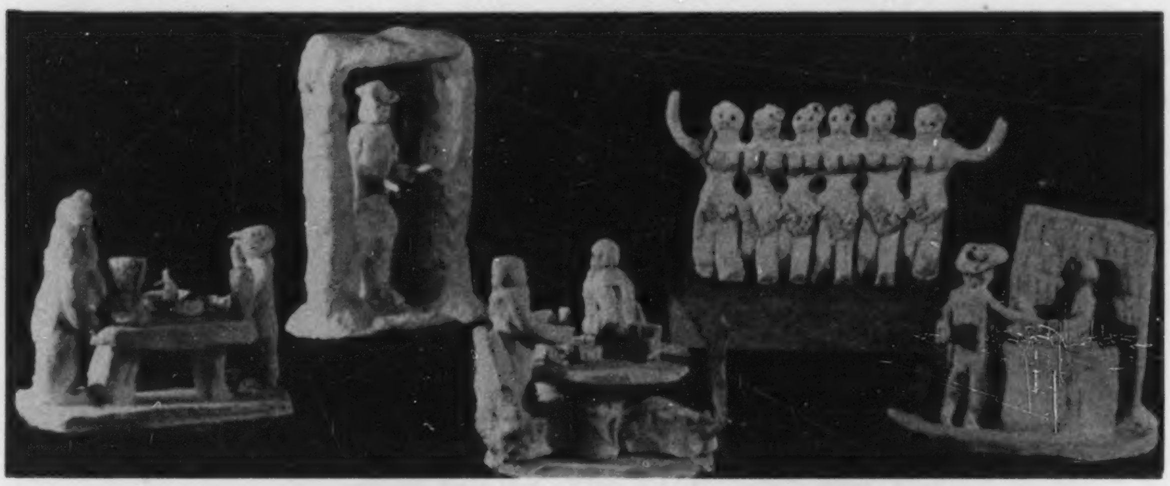


FIG. 91. —Ceramic sculpture group by 6th-grade boy. Courtesy Midtown Ethical Culture School, New York.

Harold Rosenberg (in response):

The problem of art teaching on the elementary and high school levels is really a problem of teaching the teachers who are going to teach art on the elementary and high school levels. The basic problem of art education, therefore, is a problem of higher education. If we try to translate the ideas of art that Motherwell and the rest of us were talking about directly into the problems of elementary school art education, we are completely baffled. How can we take a big idea which is involved with this moment in the history of mankind, with all our vast political, scientific and other problems, and translate it into an action program at the elementary level? Obviously, we can't do that and I don't think we should even talk about it. The big problem is what kind of preparation is being given to the people who are going to teach art in elementary and secondary schools. The real problem is, what kind of people do you want as art teachers? It is clear that on the one hand there isn't enough total cultural education in art teacher preparation. The courses in the social sciences, philosophy, and other non-art areas are extremely inadequate. And the teaching of art is inadequate. Most art education curricula appear to be filled with courses which have to do neither with understanding the times nor with understanding art. The problem of art today is absolutely a cultural problem. You can't go near a work of art and look at it without becoming involved with the whole history of mankind. The minute you begin to discuss this matter, you discover that there are practically no courses on this particular subject. In recent years, humanities courses have been developed in which the whole character of our time has been brought up. But courses of this type are very few in number and are in their infancy. But they are absolutely and importantly related to art.

On the other hand, the whole question of how to produce an actual work of art or to get people to understand it, is certainly not answered by breaking up courses into fragments or in having them deal with how to handle materials. Any artist can go out and find in six hours or six days how to do lost wax processes, or how to get all the technical information he needs. You don't need courses for that.

Robert Motherwell (in response):

I think it's really very questionable when art is diluted, whether it still is art, that feeble word we all use and nobody can define, that word in the end everybody is driven to; I'm talking about Van der Weyden or Mirò or a child of six—I'm talking about the beautiful quality of the object. If a work has some real value, it is because it is rooted in human qualities. I think when we talk about quality, we mean fineness or intensity, something that is really felt. And most of what passes for art is really anti-art, or is merely a well-made thing. The finest avant-garde artists of the present day are really trying to reestablish traditional values in the sense that there is some kind of traditional wisdom, that there is love, and truth, and cooperation, and decency, and daring, and courage, and virility, the capacity to integrate things, and the capacity to see the point. But very often the "establishment," in the *name* of traditional values, actually distorts and destroys them. Many artist members of the "establishment" produce mere decoration which is irrelevant to the real enterprise of art which is to reestablish real feeling, real contact, real sensuality, real nerve, real elation, so that one exclaims "Oh Boy! Look at that man! I'm glad I'm a man to live in a world with a man like that man!"

This kind of art *could* be taught to children if we could counteract what often amounts to negative, anti-artistic influences on the part of parents and schoolmates. One of the reasons the children are so marvelous in their art expression until about the age of seven is that until then other persons have been relatively unable to negatively influence them towards philistinism.

Zelda Dana Wirtschafter:

The art of young children is truly art in the sense that it comes from very strongly felt emotional, sensual, and other qualities that Motherwell is talking about. Young children are constantly operating from this very-close-to-the-surface mass of anxieties and preoccupations, without consciously realizing the emotional and sensual bases of their experiences. But this *is* their mode of thinking, and it's their mode of experiencing. They haven't learned yet to push away all these feelings that are going on inside of them and so they come out in their art works.

Can we teach art to children? The problem isn't teaching it. The problem is keeping children's art and children's feelings alive, encouraging them, drawing them out. The approach to teaching should be one of "leading out." I think we should provide situations where the children themselves work out these things, come to discover them, come to deal with them, and maybe come up with new principles and ways of working. The problem is for us to try and provide situations where children can keep on having art experiences in any form, whether it's the experience of building a city with blocks, or building a tower, or painting a picture, or drawing, or squeezing clay, or just anything.

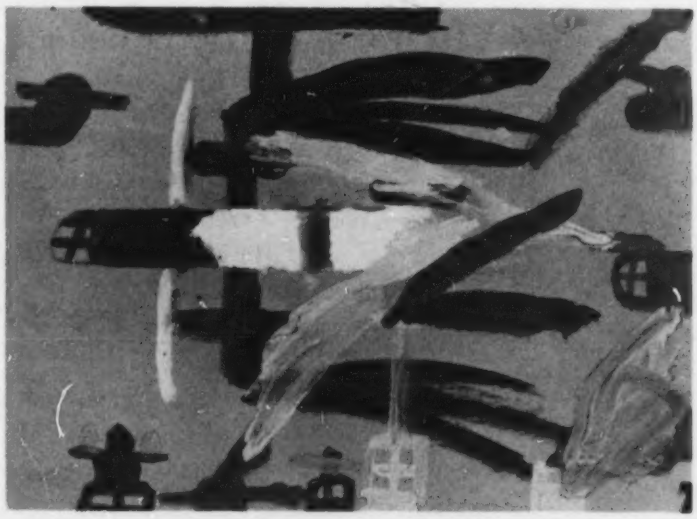


Fig. 92. —Painting of airplanes, by boy, age 6. Courtesy Midtown Ethical Culture School, New York.

Hale Woodruff:

In my teaching, I want to get across a *sense* of structure, not a *system* of structure.

The quality of art, with which many art teachers are well acquainted, is not a thing which you can identify objectively. One might say "this is the theory," or "this is the pattern," or "this is the system" by which I will appraise or evaluate the product of this child. But the child who creates a product has never seen one like it before, nor has the teacher seen it before. It is a completely new phenomenon which has emerged from the experiences and the efforts of a particular child.

Whatever structure there is, is often pre-determined by the teacher. But the teacher usually doesn't say "go ahead and paint:" she motivates her pupils in such a way that they can manipulate and work with ideas, with materials, within a structure that *they* may define or visualize as a result of the teacher's motivation. Now the result is almost entirely unpredictable, but the art teacher stimulates and guides it through her sensibility, through her sensitivity, through her aesthetic and artistic awareness. It is never a finally closed and sealed, consummate experience or product, and it goes on from there. This is the art process. You cannot pin it down to a thing which could be consciously applied with predictable answers. In art, you *cannot* predict the answer. You can do no more than become partially aware of it in terms of the qualities inherent in each particular artistic act or product.

Art has a structure which is not that of science. Art has a structure in which there is a continuous on-going search for a means or a structure. In the art process you are continually involved in a search for structure, and there are many, many answers all of which may be right. You cannot come up with a final answer and say, "Now this is it, and now we apply it to a specific situation." Art is not a search for a specific form, but it is a search for the most appropriate means by which one can make a statement about a thing, an idea, or a concept. Art is not merely self-expression; it is not merely a pouring out of the soul.

Some persons may believe that art teachers have no sense of organization or order. But perhaps disorder is a means whereby one may arrive at order! Art is a matter of trial and error, of choice-making, of rejecting and accepting; and this is how one becomes really involved in it. Structure is not a theoretical thing which you learn and apply, pack away, and when you want to make a work of art, pull it out and apply. Every attempt, every effort in the art process is one of beginning all over again. You may do almost the same thing, but you're always involved in a new concept.

Arguments in Favor of a Stress Upon Intellectual Development

Among those who appeared to favor a more carefully, possibly intellectually, structured approach to the teaching of art were:

Helen Frankenthaler:

A teacher might say, what is this Matisse, or what is this 1910 cubist picture about? What makes it work? What gives it space? Try-to figure it out! Copy it! You might hate the exercise and feel that you got nothing out of it. But, in a year, you might feel it was right.

Robert Goldwater:

Unless we are willing to say that there are certain traditional things that we can teach, and that the understanding of contemporary work carries with it the body of culture to which it is integrally related, I think the arts are not going to be understood.

The way in which you understand a work of art is by understanding the processes of the artist who created it.

There is a cut-off point in art teaching, too, and that is not really the teaching of art, or at least the same kind of art, that we are dealing with at the high school and at the college level. The crux of the matter concerning the cut-off point is the fact that most art educators have nothing to do with contemporary art culture. Somewhere around the age of eight or nine the child stops expressing himself in fundamental artistic terms, and tries to reconcile contemporary art culture and his own basic expressive drives. In trying to put these two things together, he reaches the cut-off point. The teaching of so-called art to the six, seven and the eight-year-olds is an entirely different affair, and is probably not teaching art in the deeper cultural sense at all.

Christopher Alexander:

I'm only interested in pictures, or whatever you want to call them, that have some quality, some structure that allows individual students to make an adequate in-

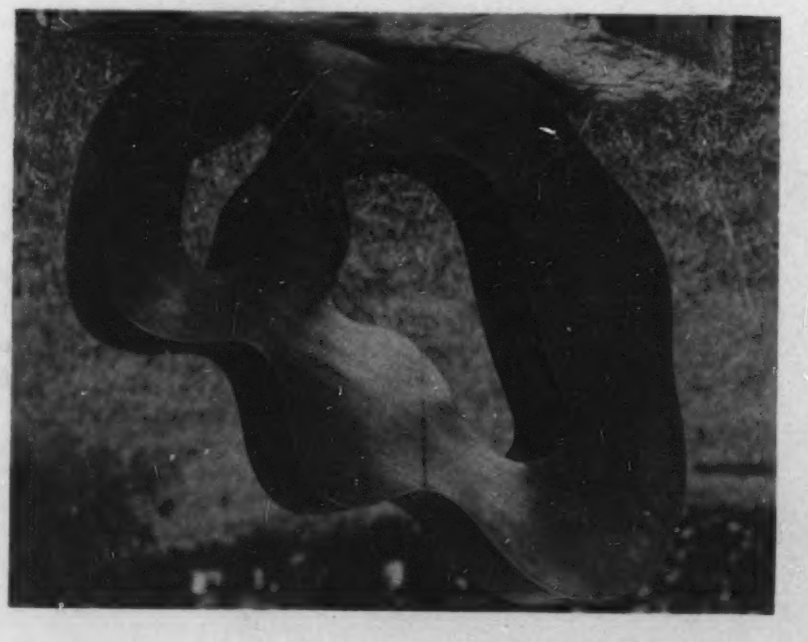
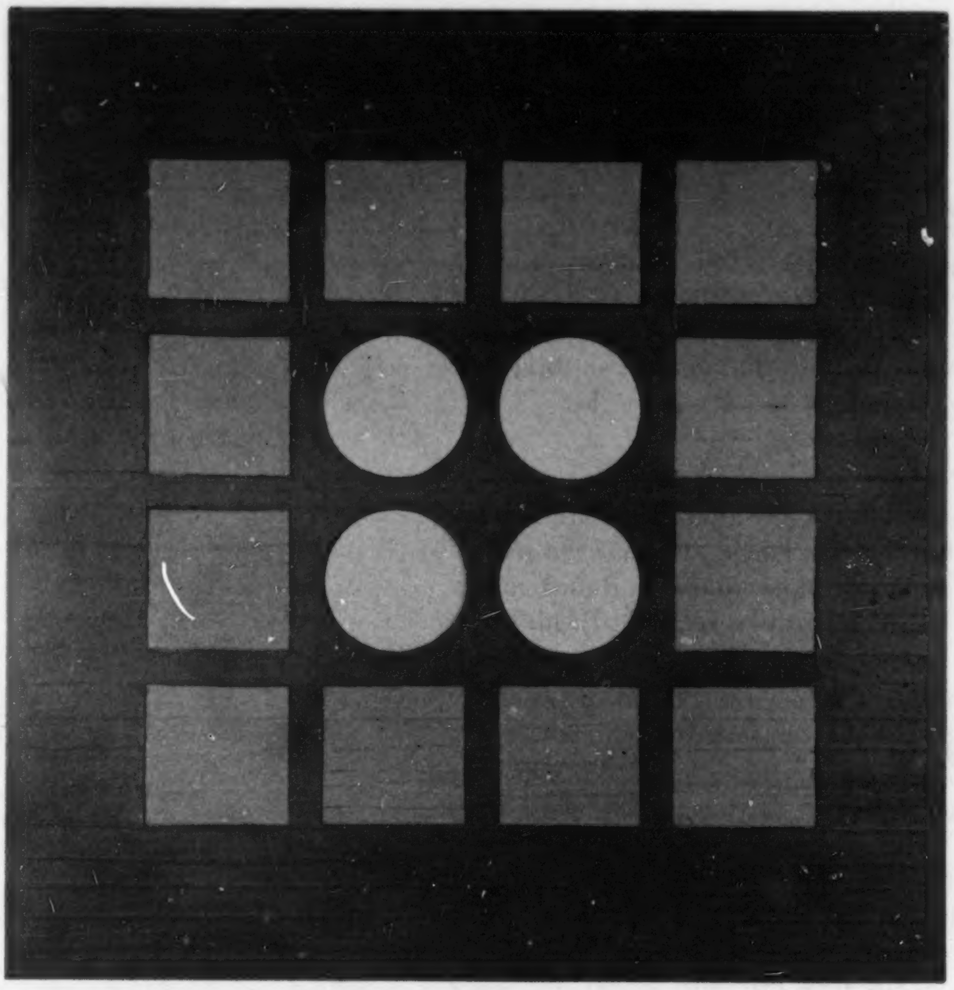


Fig. 93.—*Sevil-Ondulant*, 1960, polished stainless steel, 65 cm. wide, by Jean Arp. Courtesy Galerie Denise René.



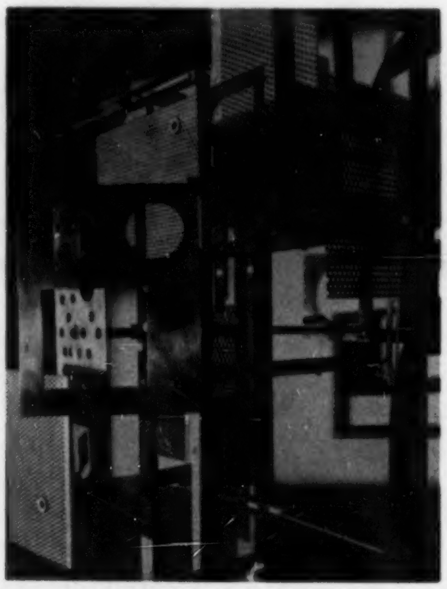


FIG. 95.—*Lux 10, Sculpture Spatio-dynamique,* by Nicolas Schöffer. Courtesy Galerie Denise René.

FIG. 94.—*Game of Chance*, 1959, oil-wax-canvas construction, 60" x 60", by George Ortman. New York University Art Collection: photo by John F. Waggaman.

> terpretation of a situation for themselves. For designers of the environment, there is precisely the same problem. We need things in our head before we get to the difficulty of structuring an environment. The things in our heads have got to have enough in them so that we can make extremely good pictures of what's there, and as a result create the right environment for us to live in. At the moment, we haven't got very good things in our heads in these respects, because children in school are filled full of irrelevant ideas about expressing themselves.

With reference to pupil's confrontation with original art works, Mr. Alexander stated: "I think it is ridiculous to take an elementary school child and expect him to get anything serious out of such a complicated event." On another occasion, he added: "Children hate the kind of museums we have." Mr. Alexander continued:

> The more problem-oriented a search is, the more likely it is to produce insight. It's very, very difficult to find this insight if you're looking into a vacuum. Many self-expressive things are going on in a vacuum. The child is asked to produce something which is not really in relation to something very clear-cut inside himself, and as a result

he has a lot of trouble. Not being able to define something is different from not having a specific structure. The fact that a Bach fugue is very hard to define in terms of structure, doesn't mean it isn't really there.

I'm nervous, because the moment we start saying "anything goes," we're not monitoring the output of the child and making sure it has a structural quality. If we are interested in developing a very, very strong sense of wholeness in a child, we need to be sure that we're saying "yes" when it comes, and "no" when it doesn't.

The word structure can get bandied around so easily that it's very, very difficult to know when you've really got it or not. Most people don't really know what the difference is between the square and the circle. They know what the two things "are," but they don't really know what some of the primary structural differences between them are. One of the differences is that the square is peculiar in having four points distinguished, but what is really critical, is that whereas every point in the perimeter of the circle is the same as every other, the points in the side of the square are all different. A visual image of the way in which the points are different from one another might be given by a square which was, let's say, green at the corners and red at the center, and in which there was a gradual transition from red to green as you went toward the corners. Now that square, if you imagine it, is a perfect structural description. It comes across very, very fast visually. I don't believe that art educators in primary schools are usually exploring things of this sort.

I'm very, very amazed and quite horrified by the incredible narrowness that we've been led into. As it's been discussed and described, this narrow thing is totally isolated from the other endeavors involved in teaching. I don't understand it. Perhaps I ought not be here.

I have one specific on my mind which I'll try to describe very, very briefly. I am trying to discover myself and to help students discover some serious new versions of environmental structure. The kinds of structure that we're looking for are very complicated. They're too complex to be stated in mathematical terms, for instance, mathematics being the language usually thought of as the best equipped to deal with structure. In order to make these structures specific, we need vehicles for thought which can express and deal with these structures. I find that when I deal with architecture students, and we've moved through the functional parts of a program and we have to start trying to find form, that they are totally illiterate of form. They do not understand anything about form! They are not capable of using form as a vehicle for thought about complex structures.

Art education has only one meaning, and it is to equip people with vehicles for thought with which they can discover structures that they could not discover otherwise. I do not understand the distinction which is implicit between art and mathematics (or any of the other sciences) which deals with structures of other sorts. I have heard various people say that math or science gets all the attention and art doesn't get enough. To me, this is an irrelevant distinction which makes no sense. I want to attack the idea that we are in the business of teaching the child to express himself. You can't emulate the great spirit of professional artists, you can't recreate it. We should not be talking about expression at all, but about search and construction. There is no point in fostering pale imitations of the works of artists.

Robert Motherwell:

Unless art has some of the same kinds of satisfactions, some of the equivalent functions, some of the equivalent areas of domain as other grammar school, high school, and university subjects, which is to say unless you accept it on the most banal, practical level (which can be heroic or stupid) it's impossible to talk about how it should be taught, how it should be made, how it should be received. We need a guiding metaphor. And since no philosopher through the history of humanity has been able to say exactly what art is, I do not believe that the problem of teaching art is the same as teaching mathematics or physics. I would guess that science to a certain degree, and certainly in mathematics to some degree, you make very clear in a certain way how to teach, and are given questions that presuppose given answers, and that the teaching problem is how to most adequately arrive at these answers. I think it is arrogant not to question whether or not there is a specific repertoire of relevant knowledge that can be systematized in the visual art areas. I find that discussions of how mathematics have been taught are largely irrelevant to the situation in art education. On an ultimate level, you can say that painting is a relational structure, that mathematics is a relational structure, that a plant is a relational structure, that machines are relational structures, and that in some way

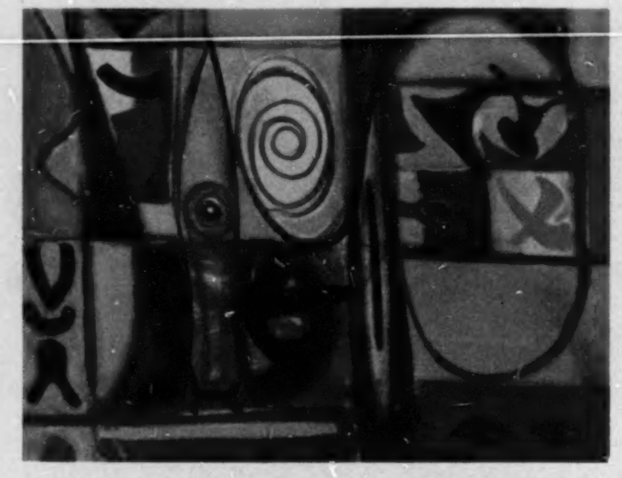


FIG. 96.—*Quest*, 1948, oil, 30" x 38", by Adolf Gottlieb. New York University Art Collection.

> they can be described. But this does not lead to creation in art.
>
> *Howard Conant:*
>
> As I understand it, much of the "discovery method" in the teaching of mathematics and science involves student performance of experiments which will help them find and laboratory-test solutions rather than memorize answers and rotely accept them. Certain aspects of this method are unquestionably applicable to the teaching of art; indeed many art educators have for years stressed (perhaps even over-stressed) "student performance" in art. But it seems to me that a major difference between art and the sciences is the fact that there are no "solutions" or "answers," as such, to be found in art, regardless of the teaching method used. Art educators could, nevertheless, probably adopt many of the newer and successfully-tested teaching methods of science and mathematics without having definite answers or solutions as objectives. They probably could, for example, structure certain experiments or activities which are less nebulous than usually-practiced studio experiences which would be useful in helping students learn through discovery various techniques, modes of expression, and the nature of art historical periods.

To clarify the basis for and nature of the reform movement in science education for consideration as to its possible application in art education, John Mays stated:

> The results in scientific investigations over the centuries, especially the last two centuries, have been given to students as if they had been handed down from Mount Sinai. Students were given no hints as to how these investigations were carried out or how results were obtained. The student, if he went into the laboratory at all, went in with the purpose of testing out nature to see if nature was

FIG. 97.—Courtesy Claire Fern. Photo by Arthur Leipzig.

behaving in the way it said it should in the text book. This of course is not the way that science is developed. Science is developed fundamentally by people observing nature. After they have made a certain number of observations they may see a pattern in these observations and then produce some sort of hypothesis. The hypothesis then suggests some things which haven't been tried which may or may not be true. You try this and if it's true you say "good" and the hypothesis is working. Well now you try something that halfway works but it doesn't really work and this suggests to you that something's wrong with your hypothesis. Then you go on to develop your hypothesis in a way that takes account of all the places it has worked but also takes account of all the places where it hasn't worked. This essentially is the process by which scientific investigations go on.

We would like to put students, both for logical reasons and for pedagogical reasons, into the laboratory and in every case where it is possible, have him come across and become familiar with phenomena in the laboratory, not in quite the same way that the first person who discovered something did, but in a manner which is not really very different. The effort, then, is to have the student come to grips with nature and to make observations and to make hypotheses. I think there must be a very strong parallel here in the arts in the sense that the artist looks at nature in all of its manifestations, and has various things he wishes to say about it.

Arguments in Favor of a Stress Upon Integrated Development

Several participants favored a more, or fully, integrated approach to learning experiences in art education. Among these were:

Sister Mary Corita:

I suppose there are people who divide things in two, but I don't know how to divide them. I don't know how to say what isn't art.

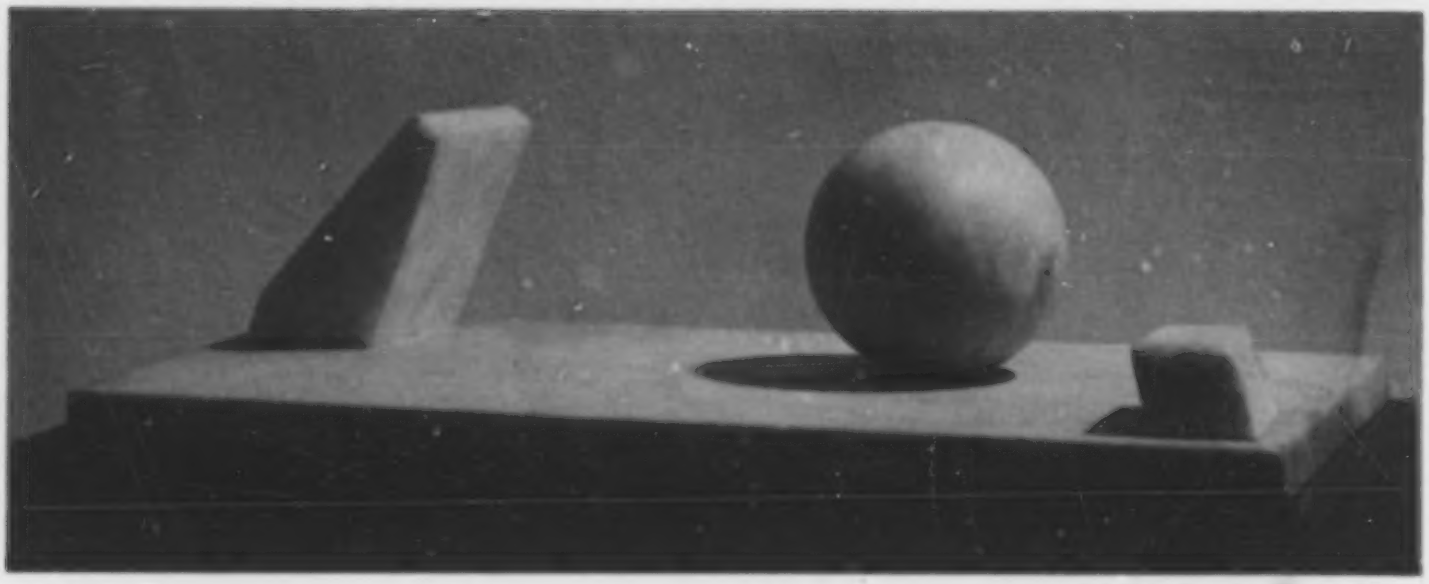


FIG. 98.—Untitled marble sculpture with wood base, c. 1952, 4 1/2 x 18 1/2 x 10", by Barbara Hepworth. New York University Art Collection.

Zelda Dana Wirtschafter:

It is a misconception to assume that high level abstractions and knowledge about art can be "canned" and fed ready-made to students in a meaningful way. If we are to develop individuals with sensitivity to and the ability to approach any work of art (including new art forms of the future which may not even exist at present) we must teach in such a way that students in the process of their education are led to develop their own abstractions and to discover for themselves the principles, patterns, and possibilities involved in various art media and works of art, both historical and contemporary. This is not to say that we are teaching every student to become a creative artist in his own right, but rather that the experience of struggling with art media provides a vital and necessary foundation for the ability to understand and analyze the work of others.

The primary purpose of education is to exercise and stretch the intellect and the imagination, not to produce walking "encyclopedias" of knowledge. Experience and analysis must go hand in hand. One of the unique aspects of art experience for children is the opportunity it provides for creative exploration and expression. However, merely to let students loose in a room full of paint and clay, and consider this the sum total of an education in art, is certainly to shortchange the student and amounts to a complete abdication of the role of the teacher. Rather, it is precisely through the role of the teacher that the two elements of experimentation and reflection or analysis come together: the student works out his own ideas *within the structure of a series of specific problems* designed by the teacher to guide him to a clearer understanding of the whole spectrum of art forms past and present. In such a program, based on a conceptual approach in which materials are important, the role of the teacher is perhaps less *visible, to the untrained eye*, than in the more traditional situation where the teacher stands in front of the class and delivers a series of "answers." For this reason, the conceptual approach is liable to gross misrepresentation by critics, and misuse by poor teachers.

Victor D'Amico:

There is a lot of decimation of art, analyzing it and pulling it apart, and never putting it back together again. Yet, I think that creating a work of art according to the point of view of an artist who has dominated our culture is very important.

I am more for integrating things than for separating them. I do not care if you call it art or anything else.

I think that the color wheel is the most damnable thing ever invented, because it puts everything in order and works out mathematically which colors work next to each other. The excitement of color, how you can affect it with lights, what you can do with colored paper, and what you can do with paint, develops an affinity for it which cannot be paralleled by traditional methods.

George Segal:

I think that, in the arts, we are fighting a paper war between human emotion and intellect.

CONCLUSION

Having assessed the present condition of the arts in contemporary society and education, and having expressed their sometimes divergent but mutually enlightening views on the nature and meaning of education in the visual arts, seminar participants then proceeded to making recommendations for improvements in art programs at all educational levels and in society as a whole. The latter make up the content of the chapter which follows.

Chapter IV

RECOMMENDATIONS AND CONCLUSIONS

The main emphases of the New York University Art Education Seminar were placed upon the recommendations for professional endorsement of position statements and for the development of follow-up projects, studies, and institutes, which are described in this chapter. All of these recommendations received widespread, often unanimous support; however, varying means of implementing them were proposed.

RECRUITMENT

> *Charles Dorn:*
>
> The recruitment of young people interested in, and qualified for, art teaching positions in elementary and secondary schools is probably more important than the up-grading of presently employed art teachers.

Other participants indicated that recruitment should begin in the junior high school and be intensified in high school and the early college years.

> *Sister Jacqueline* described a particular recruitment incident:
>
> I encountered a high school graduate in El Paso, Texas. She had been offered a scholarship to a school in California. I happened to have a Davis movie with me in which he was teaching elegant, lovely mathematics for second graders. After I showed the film, she came running up to me and said, "Is it really possible to teach like that?" This brilliant youngster, very able in mathematics, would probably have become an IBM employee or something similar. She turned down the scholarship in California and came to our college. With students like this girl, we'll have a beginning cadre of people who can revolutionize the teaching of elementary school mathematics.

FILMMAKING

Robert Osborn:

> The use of film as a medium of art expression and study is becoming more and more important. Plans for new schools and renovation will have to include facilities for film showing and production.

Fig. 99.—Courtesy Baltimore Public Schools.

Robert Motherwell:

> We must make it known that the film is a major art form of the twentieth century.

R. Buckminster Fuller: Mr. Fuller proposed that a

> . . . huge government grant be sought for the purpose of developing a massive filmmaking program.

He urged artists, art educators, school administrators, filmmakers, and government officials to give such a project absolutely top priority. The scope of the filmmaking project envisioned by Mr. Fuller would embrace all educational disciplines but would lay heavy stress upon art because of its broad cultural importance and the present lack of effective teaching materials in this field. Together with Robert Motherwell, George Segal, and a number of other seminar participants, Mr. Fuller specifically proposed the making of top-flight educational films of master teachers, leading artists and scholars in studio, study, classroom, museum, and other situations, covering all levels from pre-school through college, professional art school, and adult education. The basic aim of the project would be to expose as broad as possible a segment of the entire population to the highest levels of competence in the arts and education. A sizeable and broadly representative committee (including artists, art educators, classroom teachers, school administrators, psychologists, philosophers, filmmakers, and government officials), would select persons to be filmed by screening candidates nominated by school, college, art schools, and museum administrators, professional organizations, government personnel, and leaders in other fields. The same committee would work closely with filmmakers and selected candidates in planning format and content, and would subsequently evaluate completed films and decide how they might best be distributed and used.

Mr. Fuller suggested an approach to filmmaking in which video tapes would be used:

> The videoscope is very inexpensive to operate, and they are comparatively inexpensive to buy. A few years ago they cost about fifty thousand dollars but today they're getting down to a few thousand dollars. You can have your tape. You can run off any kind of a picture, run it back again and then reuse it for any other picture. What ought to be done is to take people you are very well impressed with and get some children and run an experimental class with them. Make tape after tape after tape, and actually have some case histories, and see if you can really find out what is good and finally you will begin to build up a library of extremely effective and highly distributable films. We are dealing with very many millions of children and I think it's the film way we can get what we want to those young lives.

It was suggested that specific films might be geared to one or more of the following audience types: pre-school children; kindergarten amd primary grade children, intermediate grade children; junior high school pupils; secondary school students; college and professional art school students majoring in art and art education; elementary education majors; non-art major liberal arts students; graduate students in art, art education, elementary education; and other disciplines; art teachers; classroom teachers; secondary school and college teacners of subjects other than art; school board members and administrators; parents; and the general public. As an example of the kind of advice the screening committee would offer filmmakers and selected candidates, Sister Mary Corita and George Segal stressed the importance of having the films aimed insofar as possible toward: the development of children's and other audience groups' own insights; multiple rather than single or rote solutions to given problems; and involving audience members in follow-up projects in creative expression (including the film medium itself) and the study of works produced by outstanding historic and contemporary practitioners in all branches of the arts.

The filmmaking project is envisioned as a continuing activity in which thousands of films and many more thousands of prints would be produced, maintaining an up-to-date contact with developments in all branches of education and the arts. A national and eventually international network of filmmaking and distribution centers would need to be established in order to facilitate both production and use.

FIG. 100.—Rita DeLisi and pupils. Courtesy Project, Inc., Cambridge, Mass.

The screening committee would, in addition, be asked to view existing art and art educational films and to select those which should be more widely used and more readily distributed. Filmmaker Philip Stapp suggested that an existing organization such as the Educational Film Library in New York would be an excellent location for the committee to periodically screen existing films.

THE IMPROVEMENT OF ART EDUCATIONAL MATERIALS AND SERVICES

A number of suggestions were made concerning the development of new and improved art educational services and materials. In some instances the problem appeared to be one of identifying and improving the distribution of existing services and materials.

Among the services and materials which, it was felt, should be catalogued, reproduced or manufactured, and circulated, perhaps through the previously-recommended film distribution centers, were the folowing:

> "Special problem" kits, containing art materials, and written and/or illustrated instructions and/or suggestions for individual use, with accompanying instructional manuals for teachers or parents, should be designed by competent artists and art educators working cooperatively with appropriate school personnel, psychologists, and persons in disciplines related to the content of each kit.

John Mays suggested:

> Perhaps there are some kinds of kits that can be put together that would put children in an artistic situation, situations which would draw out of them their artistic sense. I have a feeling that the ways in which materials could be correlated with the kind of learning experience you wanted children to have, that the ways in which materials could be used, would be much more important than the materials themselves.

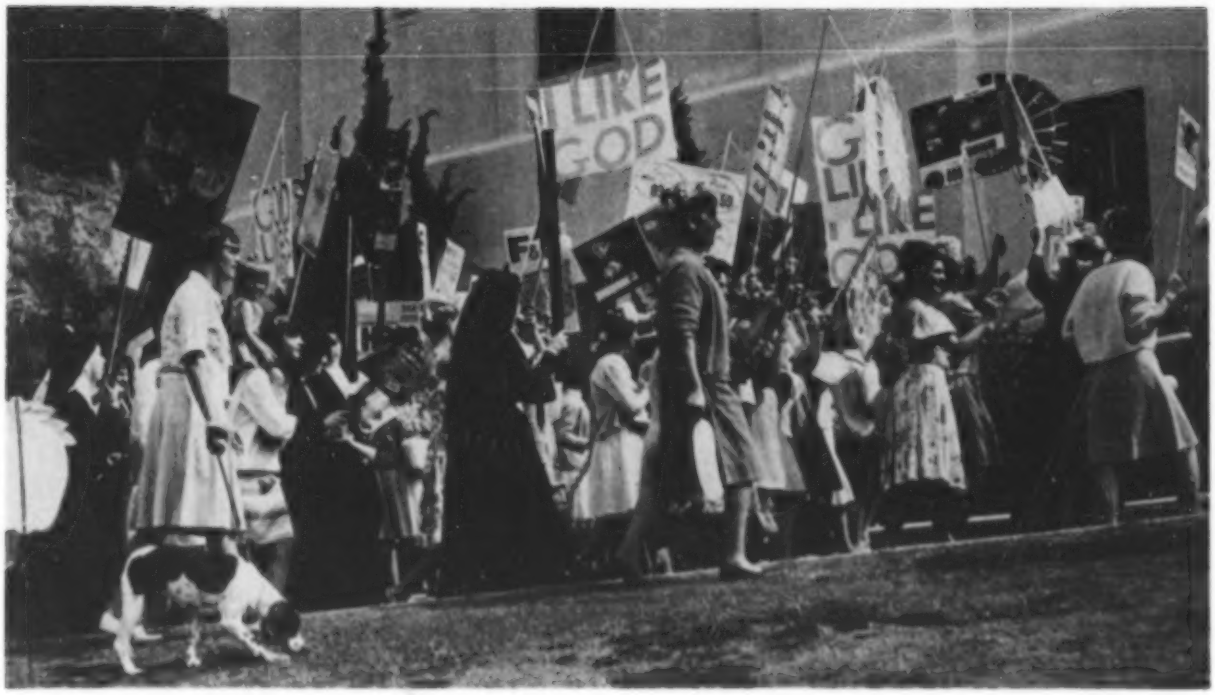
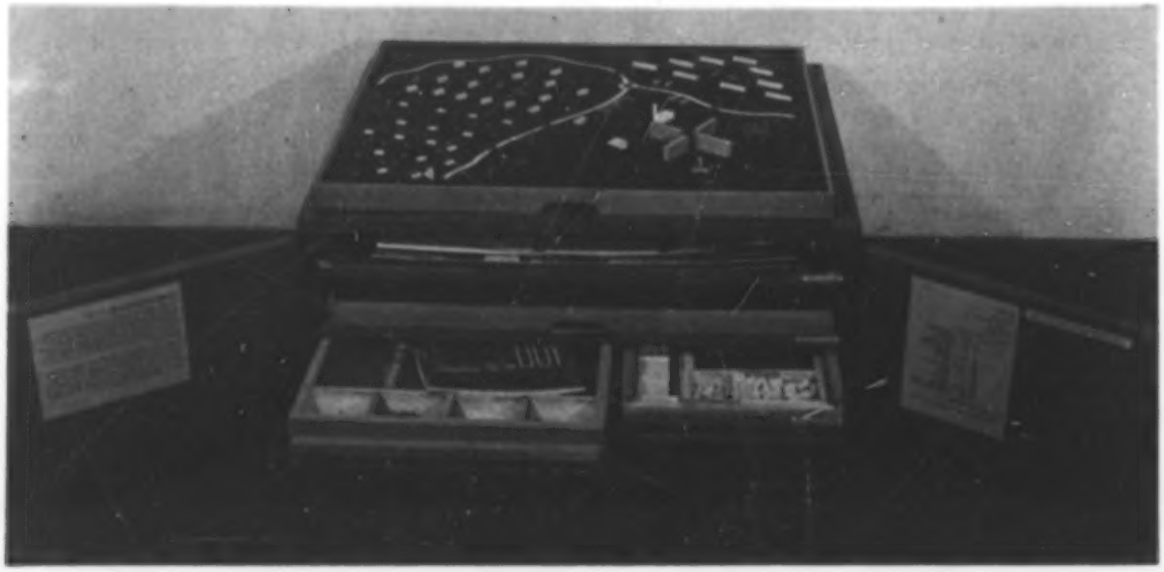


FIG. 101. – Setting of parade scene from *Mary's Day* film produced by Immaculate Heart College. Los Angeles, Calif. Courtesy Sister Mary Corita.

FIG. 102. – Neighborhood Planning Teaching Model, designed by Victor D'Amico. Courtesy Education Department, Museum of Modern Art, New York.



One "special problem" kit, (which might be more widely distributed and economically produced), was designed by Victor D'Amico and produced by the Education Department of the Museum of Modern Art in New York. It contained a variety of colorful materials for making collages.

It was felt that a nearly endless variety and number of materials, on the order of the packaged instructional ones mentioned above and several others, might be developed. The format of the "Neighborhood Planning Teaching Model", for example, could be adopted to many content areas as well as selections of materials for group instruction. Kits designed to enrich and supplement formal instruction in various art historic periods (or schools, styles, or individual artists) might include slides, a slide viewer and miniature projector, films, filmstrips, color reproductions, teachers' manuals, texts, reference books and articles, and printed information for each student.

On a somewhat smaller, less bulky and less expensive scale, teaching portfolios of color reproductions on various techniques, (such as collage-making or wood engraving), art historic periods, and individual artists could be (in some cases already have been) developed. Accompanying text material might be located beneath and/or on the back of the reproductions, or could be printed on separate cards or a brochure. Printed, and possibly illustrated information for each student might also be included.

Another recommended project, related to the filmmaking program, is a series of coordinated color slide and tape-recorded presentations of the type given at the seminar by Bartlett Hayes. Indeed, a number of participants urged that Mr. Hayes' slide/tape presentation be mass-produced and made available for sale or rental at the earliest possible date. One advantage of slide/tapes is the modest cost of mass-production. Even less expensive, though not as easily coordinated, would be color filmstrips in place of slides. The range of subjects for slide/tape presentations is, of course, as broad as the entire fields of art expression and art history.

Another variant of the filmmaking and slide/tape recommendations combines non-sound, 8mm. or 16mm. film with coordinated tape recordings. These are much less expensive than sound films. For student filmmaking 8mm. motion picture-making with recording tapes are highly recommended because of their very low cost and flexibility.

Another inexpensive project, which would probably be most useful at the secondary, college, and art school levels, is a series of tape recordings in which distinguished artists, scholars, aestheticians, and teachers would express the *raison d'etre* of their works or writings, and would, perhaps, comment

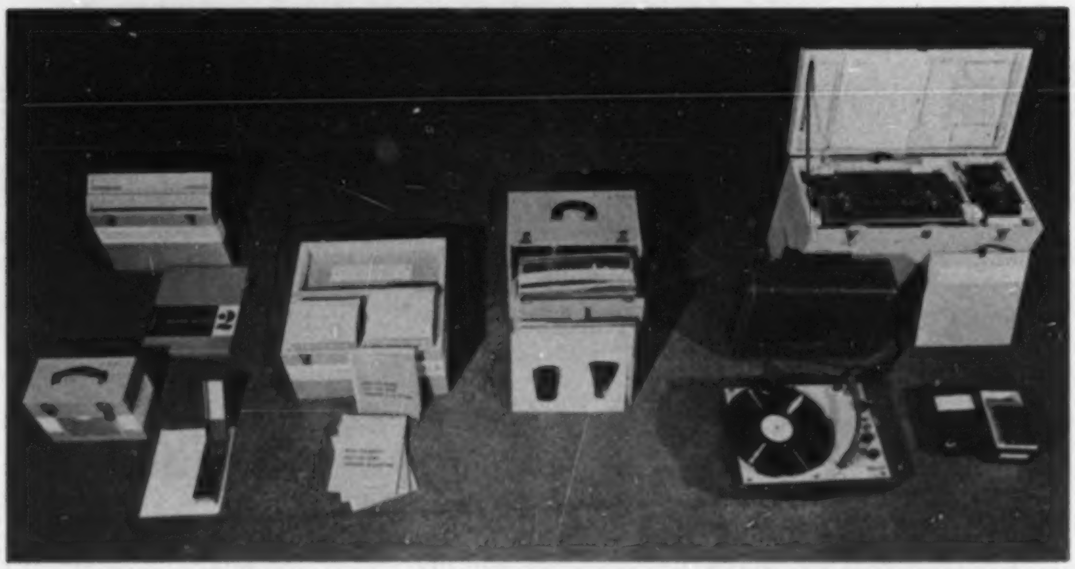


FIG. 103.—Packaged teaching materials, including teaching portfolio, slide talk, texts on pottery making, photographic plates on useful objects, and recorded slide talk.

on the works of favorite artists (Philip Guston, for example, on Paolo Uccello; and Robert Motherwell on Henri Matisse), historic periods, schools, and possibly their own, or others', techniques. Schools purchasing or renting such tapes could, while using them, project appropriate color slides or reproductions. Ideally, both slides and reproductions of works discussed in the tapes, could be sold or rented along with the tapes as a packaged unit.

CATALOGS AND GUIDES

Also recommended was the formation of a committee to catalogue and publish critically-selected, annotated listings of books, courses of study, periodicals, films, filmstrips, tapes, slides, records, reproductions, and portfolios, listing sources, publication dates and costs. A related project (which might incorporate all or parts of published guides recently produced by Spaeth, on American art museums, and Faison, on art museums in New England) would be a comprehensive, annotated, and illustrated listing of all art museums and gallaries in the United States and perhaps abroad. It should list opening and closing days and hours, admission costs, educational and loan services, key staff members, and brief descriptions of works or types of work to be seen. It was felt that annotated listings of the types mentioned above would have a pronounced positive effect upon the quality and scope of art education programs, would encourage increased, but more wisely chosen reading and looking, would stimulate field trips, and would cause art teachers to make much better use of local and regional resources (with which many of them are not wholly familiar). It was recommended that the foregoing publications be produced as expeditiously as possible and be placed in the hands of every art and classroom teacher, every art and elementary education college student, and every school administrator.

LECTURE AND PLACEMENT BUREAUS

It was suggested that another important art educational project would be the development of non-profit lecture and placement bureaus which would develop and distribute booklets in which the names, addresses, subject specialties, and fees of lecturers, consultants, demonstrators, art workshop directors, and artists and other persons wishing to teach at various educational levels were listed, and when asked to do so, would handle bookings and placement. The listings would be as comprehensive as possible, including persons in all of the art fields and ranging from the most distinguished artists and scholars to lesser-known persons. The bureau would be asked to charge the lowest possible booking or placement fee.

PUBLISHED STATEMENTS ON ART EDUCATION

Another recommendation urged the development of brief, succinct, well-written publications designed for widespread circulation, profusely illustrated, and containing highly persuasive statements aimed at improving the public image and knowledge of art education. The primary audience for such published statements would be parents, school board members and administrators, elementary classroom teachers, government leaders, philanthropic foundation personnel, and the general public.

Hopefully, all of the above-mentioned teaching materials and services would be made available at the lowest possible purchase or rental prices or fees. Professional organizations such as the National Art Education Association, the Institute for the Study of Art in Education, and College Art Association could probably be interested in developing distributing, or at least supporting through endorsement, certain of these materials and services. But because of the urgency of the professional need, and the broad scope of the foregoing recommendations, it is strongly felt that initial funds should come in the form of a federal grant to an institution of higher learning which would develop and distribute the materials and information on services. The cost of the project would eventually be amortized (at least partially) through sales, rental charges, and percentages of fees.

THE TEACHING OF ART IN ELEMENTARY SCHOOLS

Seminar participants unanimously supported the belief that specially-trained teachers of art should be provided in every elementary school, and that under conditions felt to be minimal there should be one art teacher for every five hundred pupils (or twenty classroom teachers). There should, it was felt, be frequently scheduled in-service workshops for elementary classroom teachers, parents, and school administrators.

Also endorsed was the belief that every elementary school should be provided with an adequately-equipped and supplied art room (preferably a workshop or studio), in which a wide variety of studio and art study experiences could be provided for every child. The elementary school art room should provide every elementary school pupil with supplies and facilities for creative art expression in such media as tempera paint, sculpture media (clay, plaster, sandstone, and soft wood), wood blocks, linoleum, and plastic sheets for printmaking, and photographic materials.

It was felt that teachers of subjects other than art (social studies, mathematics, etc.) should by means of pre-service courses, in-service workshops, and institutes, be encouraged to assume increasing responsibility for teaching certain elements of art education such as urban design, scientifically-derived color theories, and mathematically-related proportionate relationships.

Robert Motherwell believed that "one of the origins of despair," for the elementary school child, "is to have too many possibilities." He added:

> . . . if you want to drive a child crazy, give him a menu with a thousand things on it and ask him what he wants for lunch, or show him a thousand children and ask him with whom he wants to play.

Zelda Dana Wirtschafter said,

> My philosophy about what teaching is, and what should go on in the classroom, is not so much concerned with what specific things children learn: I'm interested in having them learn that they can do things; that they can attack problems, and find all kinds of ways of solving them. I don't care what the particular problem is. I'm interested in having them experience problem solving over and over again.

Fig. 104.—Courtesy E. H. Sheldon and Co. Photo by Dale Rooks.

Fig. 105.—Courtesy Board of Education, New York.

Neal Mitchell indicated that:

> We certainly can't cover everything that has to be covered. We can only give elementary classroom teachers a framework and a point of view. We can give them the tools and the techniques, so that as they expand their practice, their experience, they can grow. I've given up thinking that we can teach them everything in the limited time that we have. It's just impossible. But we can give them a way of looking at things. If you give them a way of looking at things, if you train them well, if you give then an excellent teacher and practitioner of sculpture, physics, or the new math, I think they can pick it up. I think they can be reached. I've seen some fantastic elementary classroom teachers. They're in the schools. I've worked with them. I think we should not try to put, say, a sculptor in every school but find a way for these classroom teachers to go back and be profoundly stimulated and taught by highly qualified professionals. I think classroom teachers need this help, and I think they are ready, and I think that they will build their correlations from the type of things they will be exposed to and I think their correlations are going to be very exciting and have far

more to offer than we have. I'm not too concerned that Motherwell come to Cambridge and teach in the school where my son's going to go, because I don't think my son will be capable at eight, nine, or ten to absorb what Motherwell's got to say. But I'd sure like to have my son in a class with a teacher who's been exposed to Motherwell. I tried something like this with a group of teachers, in a scientific area, and I've never been so fascinated in my life.

Scientists have found that a normal, liberally trained teacher can be exposed to certain things and can work extremely effectively on the elementary level. They have not tried to put a physicist in every elementary school room. They developed a series of things that go into the elementary school room to help the teacher. Can't this also happen in art education?

Robert Goldwater added:

Nobody expects a person teaching American history in the third grade to be a serious historian. I'm saying that perhaps it is a mistaken assumption to believe that elementary school classroom teachers can be fully knowledgeable in the arts.

Christopher Alexander indicated his belief that:

In practice, the art education of very young children should begin with exercises which teach the child visual or graphic ways of grasping and expressing structures or patterns whose nature is known to him (like the number system, the shape of leaves, the relationships between members of his family, the pattern of bricks in a wall, the pattern of stripes on a cat's back). These exercises should then become harder, so that the child produces visual and graphic versions of structures unknown to him but which are yet graspable (like the cracks in an ice-floe, the inside of a star, the inside of a piece of fruit, and the stresses in a piece of cardboard bearing a load). Finally, these exercises should proceed to the point where the child attempts to give graphic representations of structures which he cannot express or explain verbally, like the emotional relationships of people in a crowd, the interrelationships of animals and plants in a field, and the relation between a man and the chair he sits in.

Howard Conant said:

We can and should build upon the young child's profound sense of aesthetic quality and his inherent ability to

FIG. 106.—Assembly Building
Chandigarh, India, by
Le Corbusier.

express himself in artistically significant terms. We should provide him with numerous opportunities for learning about art and for expressing himself creatively in a wide variety of art media. I think that Einstein's belief that the young child can comprehend the essence of advanced mathematical concepts is, in principle, applicable to art education. I believe that the very young child is capable of understanding, and able to express in his own terms, "advanced" aesthetic concepts, and that he is inherently able to create art products of an extremely high artistic quality.

THE TEACHING OF ART IN SECONDARY SCHOOLS

Percival Goodman (to Harold Rosenberg):

If you are assuming that the average student in the secondary school is a gifted artist, I think you're living in a dream world.

Harold Rosenberg (in response):

I am. I wouldn't have anything to do with the arts if I weren't living in a dream world. Every dream that we have can become the practical problem of the day and the attempt to make art a purely practical problem gets us into all kinds of confusions. For example, look at the history of New York's High School of Performing Arts. It was first organized as a school for juvenile delinquents. But, it turned into a terrific cultural center for the entire city school system! There is a mysterious energy around which turns some kids into delinquents, but when you got them deeply involved in serious art they often stop being delinquents. That is how the High School of Performing Arts changed its character.

Frederick Logan:

At least those students who want to take art courses should be able to do so without restriction. Parents, guidance counselors, school adminstrators, and school board members must be helped to understand the importance of fundamental art study for all students and advanced courses for students who want to take them. And colleges must be encouraged to accept high school art courses as part of their admissions criteria. Improvements in secondary school art programs, particularly with reference to increased emphasis upon art history, would appreciably enhance such acceptance.

Charles Dorn:

A study should be made to determine which high school art programs now receive Carnegie unit credit; what qualities should be required as minimal for such accreditation; and how presently deficient high school art programs can improve their offerings in order to become accredited.

Henry Hope:

We should give all students, not merely those who elect high school art courses, an awareness of the significance of the visual arts in the history of mankind, and particularly of; their place in contemporary life. Such a program should include all of the visual arts, architecture as well as painting, sculpture as well as drawing and printmaking, photography and films as well as objects for everyday use. Its goals should be to develop a vastly increased aesthetic sensibility and judgment in the public mind.

To work toward this broader objective, the secondary schools will need to develop a new course in the history of art. The emphasis in such courses should be not upon an encyclopedic assemblage of facts, names of artists, titles, dates, and places, but rather upon a critical selection of works of art from the past and present, and a study of their meaning and value in relation both to the periods in which they were produced and to our own time. Although such

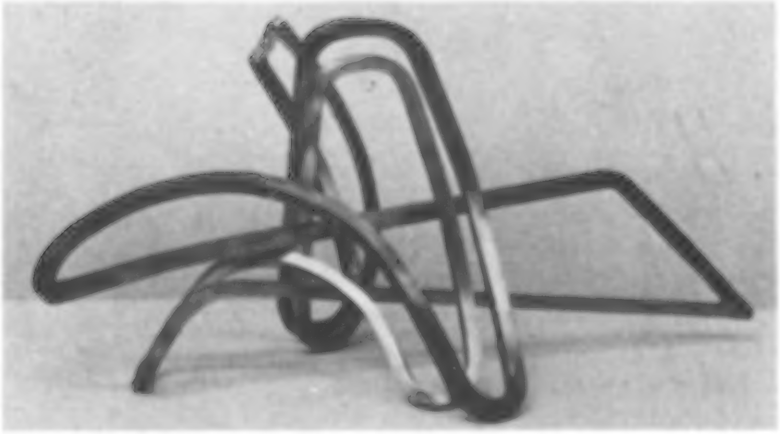


Fig. 107. – *Symbol A*, 1960, steel and brass, 7 x 15 x 9", by Mary Callery. Courtesy M. Knoedler & Co., Inc.

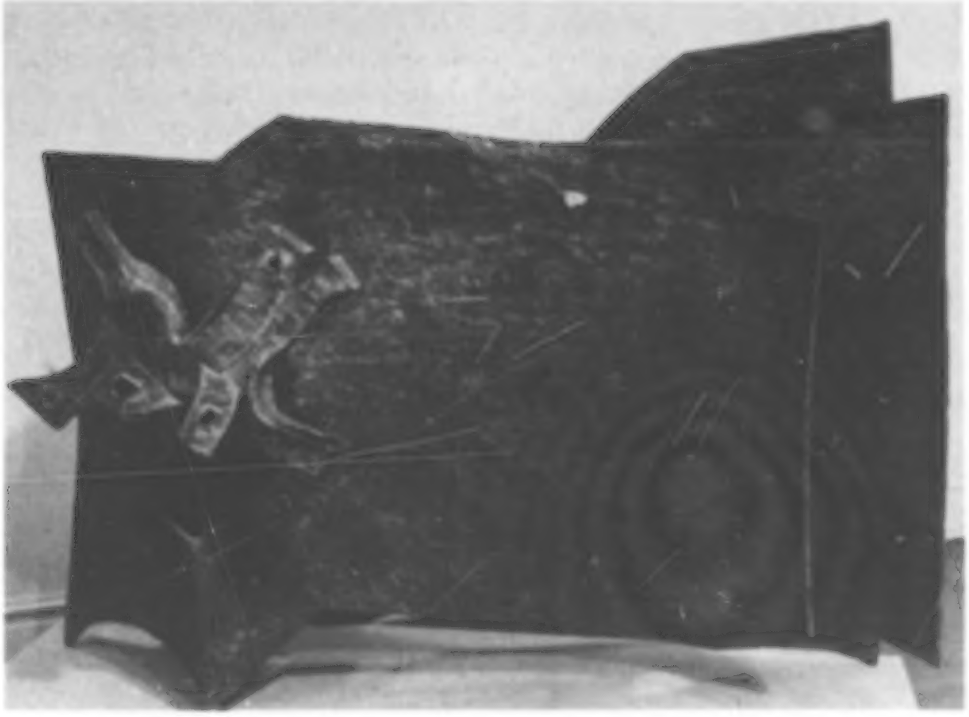


Fig. 108. – *Manuscript*, 82" long, by Seymour Lipton. Courtesy Betty Parsons Gallery.

courses should probably give as much or more attention to contemporary art and architecture as to periods of the past, wisely planned syllabi would probably offer individual teachers a wide choice of selection ranging from cave paintings to pop art, and including Asian as well as western countries, and the arts of primitive peoples as well as those of more developed societies. What is most important is the teacher's encouragement of perceptive and critical analyses of works of art in terms of both their form and content.

College and university art history departments should consider the possibility of offering a special master's degree for teaching art in secondary schools. This need not differ substantially from the customary M.A. degree in history of art. The difference would be mainly in attitude. Whereas the

> M.A. is very frequently considered merely a step toward the Ph.D., this new degree, the M.A. in the history of art for high school teaching, could perhaps be thought of as a terminal degree. The recipient, if properly trained, could be charged with the responsibility of giving art courses which encourage critical analysis and value judgments rather than a mere gathering of facts.

THE EDUCATION OF ART TEACHERS

Art teacher education was one of the main concerns of participants in the New York University Art Education Seminar. Without exception, participants agreed that present practices in the education of teachers of art are markedly inadequate and in need of major reorientation, sharp upgrading, and in some cases, abandonment and replacement.

Liberal Arts Courses

Robert Motherwell commented:

> The several years it now takes to really enlighten, to really educate teachers of art could be much more effectively utilized if art education students entered college already reasonably well cultivated in the arts and liberal arts subjects.

Howard Conant suggested that:

> An excellent college philosophy course in ethics might equip future art teachers with the sensitivity, intelligence, and courage to rebel against dogmatic or rigid school practices which lessen the potential effectiveness of art education. In light of recent increases in requirements of high-level, undiluted liberal arts courses for art education students, a course in ethics, not to mention highly-desirable courses in other disciplines, could easily be required. The sometimes-heard complaint that liberal arts and other non-art courses interfere with the optimum development of art students, whether they are preparing to become art teachers, painters, or designers is, to the extent that high-level concentration on one's major subject is obviously necessary, justifiable. But so is the argument that artists, designers, and teachers of art need, as Mr. Motherwell has observed, to be totally cultivated. Since secondary schools are not presently able to perform this needed service—indeed it is unlikely that even under the most ideal conditions that they could bring adolescents to a really high

> level of cultivation—colleges, universities, and art schools must. This may very well mean that curricula designed to prepare artists and teachers of art will need to be extended to five, six, or even seven years. Why, indeed, if it takes seven years to properly train lawyers and physicians should not the education of artists and teachers of art be extended to the time it takes to do the job superbly well?

Studio Courses

Reacting to Hale Woodruff's complaint that college art education courses, especially in such "studio" areas as drawing, painting, and sculpture, are inadequate because of fragmentation, seminar participants recommended sweeping changes in existing practices: studio courses for art students (whether or not they are planning to become teachers) should encourage concentration upon a few, rather than introductory experiences in many, media; and should be scheduled on a more or less open-ended basis so that students need not stop when they are "going strong" or feel compelled to continue when they are not. Such changes would obviously require drastic revisions of existing state and city art teacher certification requirements, as well as extensive modifications in college and art school curricula. School and certification officials must be made to realize that teachers of art cannot be all things to all people: they *cannot*, in four or even more years, be adequately prepared to teach courses in such widely diverse areas (most of which are presently required by many states and city education departments and are, to some extent as a result, required by many college art education departments) as advertising design, architecture, crafts, drawing, mechanical drawing, design, painting, photography, printmaking, sculpture, and textile design. There is no sound reason for requiring experiences in all of these areas. The elementary and secondary school students with whom art education students will subsequently work, would be much better served by an art teacher who, as George Segal observed, ". . . is passionately involved and has real insight in what he's doing," than they would by a teacher who had taken a two point course in each of a dozen or more diverse art courses. One of the more obvious and expedient means of affecting concentration in a few media and of permitting more time for studio experiences, would be the grouping of such courses as drawing, painting, and the graphic arts; or three-dimensional design, clay and certain crafts workshops in two or three-dimensional media. It should go without saying that studios will need to be available for unrestricted use from early morning until late at night, seven days a week.

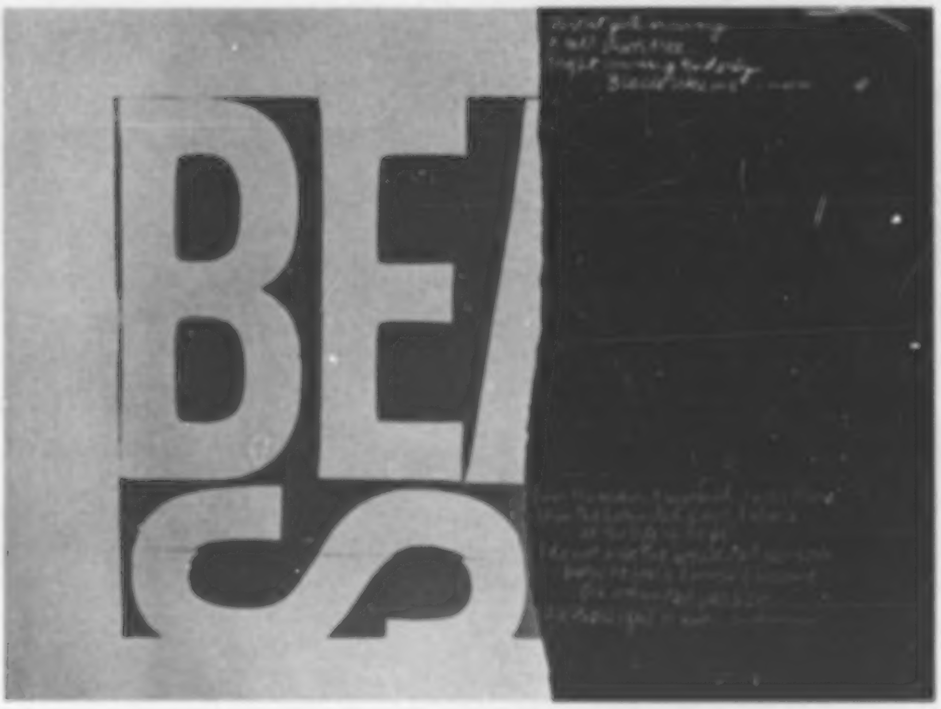


FIG. 109.—"Tender be-part two-Night Coming Tenderly," serigraph, 1946, by Sister Mary Corita.

Robert Osborn remarked:

> When a student *really begins to paint*, when he's *really pushing it as hard as he can*, he should be able to stick with it until he's really exhausted it. But like any artist, he just can't come in at nine o'clock and "turn it on" and be told two hours later he must "turn it off." This is the most destructive thing I can think of! If he could begin when he really felt like beginning, and continue until *he* wanted to stop, he'd really move—he'd really get in front of this thing called art.

Robert Motherwell:

> It once occurred to me, in looking at some of my Hunter College painting students, that maybe they have an armored shell. Many of them were painting *a priori* ideas. Some of these ideas came from the *Saturday Evening Post*, some from Yale University, and some from the Dalton school. I devised a series of studio experiments in which these ideas would be lost. Do you know what happened the instant they were lost? Sex became the subject. Invariably, at a certain very embarassing moment I would have to show them that this was probably an obsession, or was revealing of something else, but that they had the right to choose any subject matter they wanted to. I only asked that they should not choose subject matter unknowingly.

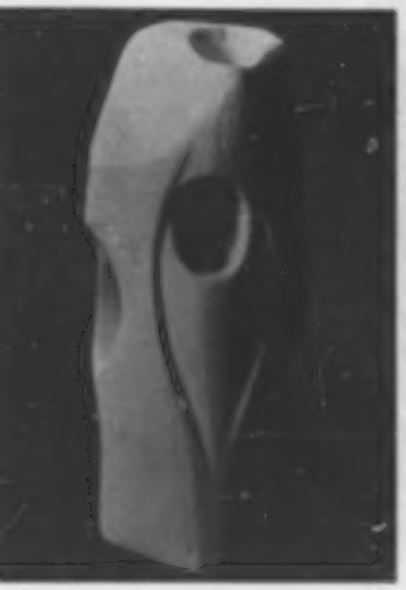


FIG. 110. – Carved plaster sculpture by girl, age 17.

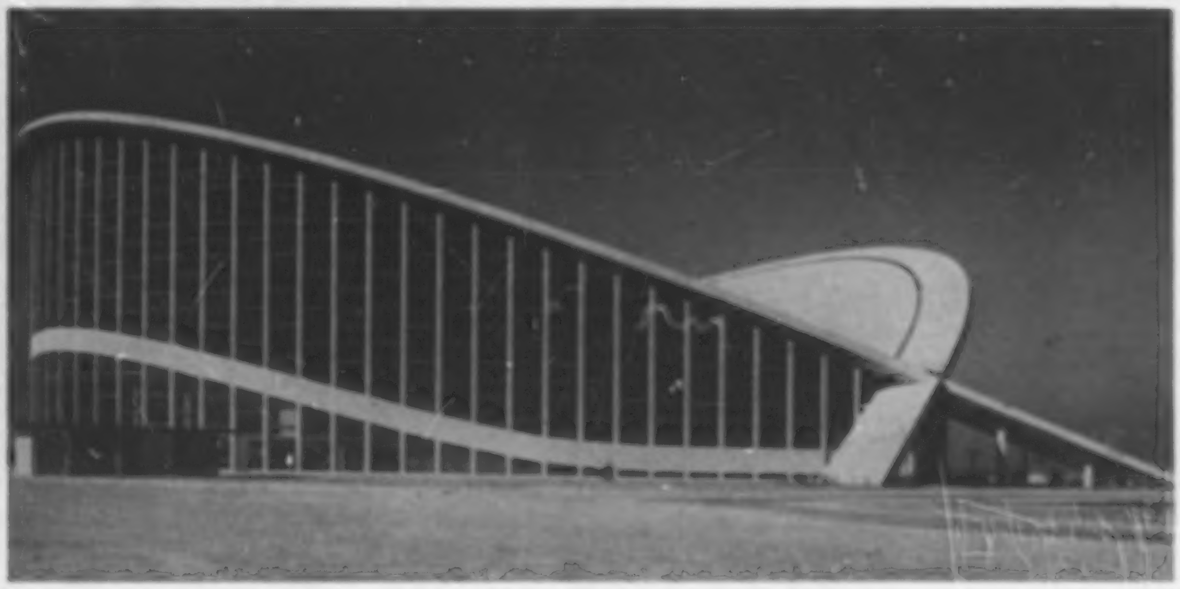


FIG. 111. – State Fair Arena, near Raleigh, N.C., by Matthew Nowicki. Courtesy State of North Carolina.

Anthony Smith expressed his belief that:

> . . . The translation of problems from one medium to another is an essential way of giving an understanding of the essential character of the media. The teacher might, for example, suggest that a student attempt to translate into sculpture a piece of work he had done in paint or the graphic arts. It seems to me that by methods of this sort it might be possible to nail down some of the ways of getting real insight into how art can best be taught.

George Segal observed:

> By means of what some teachers have thought to be the "Bauhaus method" attempts have been made to bring students too quickly and quite arbitrarily to a high level of abstraction. Students should, over varying periods of time and in various ways, develop their own concepts, their own abstractions. The function of the teacher is to provide many media of expression, to suggest many ways of using them, and to encourage students to discover for themselves the principles, patterns, and possibilities inherent in their works.

Noel McKinnell stated his conviction that:

> The only way I can help students learn anything about designing is by finding out the problems of building with them. I think the only way you can help students learn to involve themselves is by working with them as individuals. You can't have seminars, or even groups as small as three. It has to be one person working with another person.

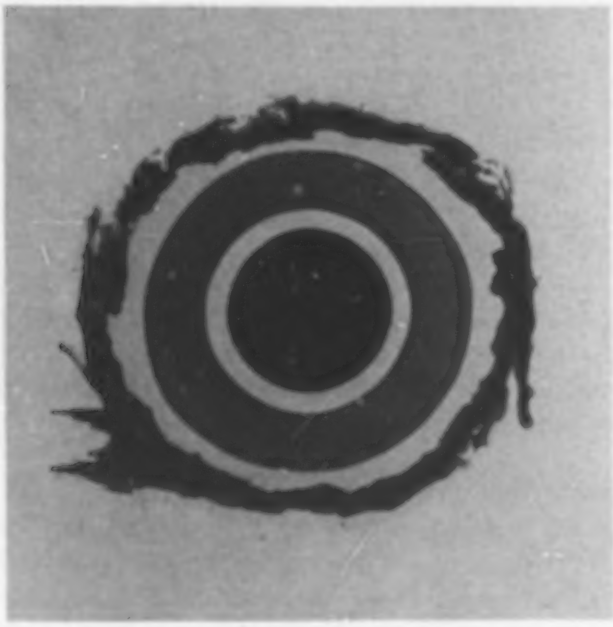


FIG. 112.—*Spread*, 1958, oil,
117 x 117", by Kenneth Noland.
New York University Art Collection.

Art History Courses

The complete inadequacy and, usually, wrongly-oriented nature of art history requirements for art education students were resoundingly deplored by participants in the New York University Art Education Seminar. A report that the national average requirement for art teachers is a mere six points of credit in the history of art (less than one twentieth of the 130 points required for the bachelor's degree in art education), was regarded as astonishing. How, participants asked, can persons who wish to teach art in elementary or secondary schools, function with any degree of effectiveness of their training if the basic subject matter of their chosen profession is so drastically limited? It was agreed that art history requirements should be significantly increased (to at least fourteen points of credit); that instructors of such courses should stress aesthetic understanding rather than rote memorization of historical and other "facts"; that the arts of all cultures, including those of the east, should be included (though selectively and in depth, not comprehensively); that greatest emphasis should be placed upon the arts of the present century; and that architecture, urban design, the crafts, and other art forms should be dealt with as well as the more customary fields of painting and sculpture.

Harold Rosenberg asked:

> How do art history courses stand on theory? Do they teach much of what art is really all about? What *is* modern art about? What are the types of experience represented by

different avant-garde schools, and how have the concepts underlying them been changed? We're always up against these concepts in dealing with the works of any individual artist. Take a painter like Newman: he takes the formality of Mondrian, a neo-plasticist, and puts a completely different content into it. Now this is where the traditional way of doing things and a complete originality meet. I wonder how much of this is understood.

Zelda Dana Wirtschafter:

Students should be led to an understanding of specific periods of works of art through first-hand experiences with the material involved, working within the structure of the specific problems with which artists being studied were dealing. Such experiences form an excellent basis for analyzing works of art themselves.

Sister Jacqueline:

. . . teachers should be more in touch with the mainstream of their culture.

Christopher Alexander:

Art educators must effect a fusion of their concern for form with the concern for form now held in the physical and biological sciences.

Robert Motherwell:

Art history courses should be taught by people who are creative, people who are preoccupied with what the living problems are. The only subject matter of art history is art and creativity.

Art Education Philosophy and Methods Courses

Participants strongly felt that too much time in art teacher education curricula is given to art education philosophy and methods courses, and to other education courses such as "general methods of teaching", educational psychology, educational sociology, the history and philosophy of education, and student (or practice) teaching. On the other hand, they felt that high-level, intensive, concentrated experiences in these fields are valuable and that with excellent teachers, adequate teaching aids, carefully selected and scheduled in-school observation, participation, and student teaching, such courses are

Fig. 113.—Student teaching seminar. Courtesy State University College of Education, Buffalo, N.Y.

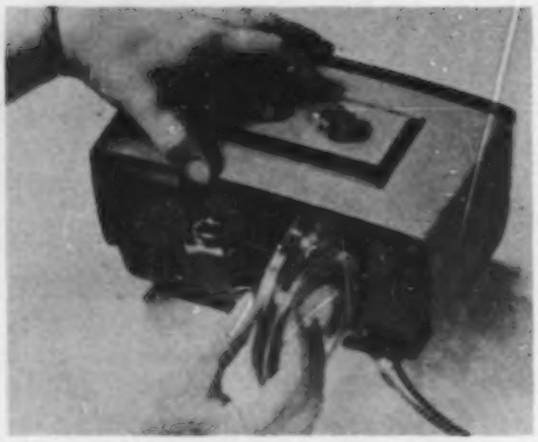


Fig. 114.—Technicolor "800" cartridge projector.

essential. But rather than the 18-22 points of credit presently allocated to such courses in most art education curricula, seminar participants recommended eight to ten points of intensive course work in this area.

Seminar participant Robert Iglehart proposed an even more drastic change:

> If I had my way I would remove all education courses from the undergraduate level and put them into an internship program. This would require the part-time supervisory service of some of the best elementary and secondary art teachers, and would, of course, have far-reaching effects upon prevailing practices in undergraduate and graduate art teacher education programs.

Several participants endorsed Professor Iglehart's proposal, but suggested that the internship plan might, for some students, begin as a form of improved student teaching at the undergraduate senior level. Further, it was felt that exceptional sophomores and juniors might be asked to serve a half or full day per week as "pre-service teaching interns" under the supervision of qualified elementary and secondary school art teachers.

With particular reference to their use in art education philosophy and methods courses, but also for use in art history, studio and liberal art courses, it was felt that self-teaching and/or supplemental instructional materials and equipment should be expeditiously developed and widely used. Among those recommended were: 8mm. and 16mm. color/sound films (preferably of the easy-to-use, cartridge insert type designed for the light-weight, portable projectors demonstrated at the seminar); coordinated slide/tape presentations; profusely-illustrated, well-written art education texts; and portfolios of annotated illustrations in a photographic essay format; all showing a *variety* of top-level, on-going art education programs at every age and grade level. Such teaching aids should be produced in quantities sufficient to make it possible to use them like reference texts in the classroom, the library, and even in the dormitory or at home.

RECOMMENDATIONS PERTINENT TO ALL EDUCATIONAL LEVELS

Curricula

Robert Osborn insisted:

> Don't say, "ideally" art should be taught to all children. It should simply be understood that art, like other basic subjects, should be taught to *everybody*.

Seminar participants unanimously endorsed Osborn's belief that art should be treated as a "basic" subject, and deplored the fact that it is unavailable, let alone required, in so many schools, and that in the few schools in which it is either required or offered as an elective subject it is offered for only forty or fifty minutes per week at the elementary level, and for only ten or twenty weeks during the entire junior or senior high levels. Concerning this situation, Robert Osborn asked, "What kind of culture is this if we deny an adequate education in the arts to so large a segment of our population?"*

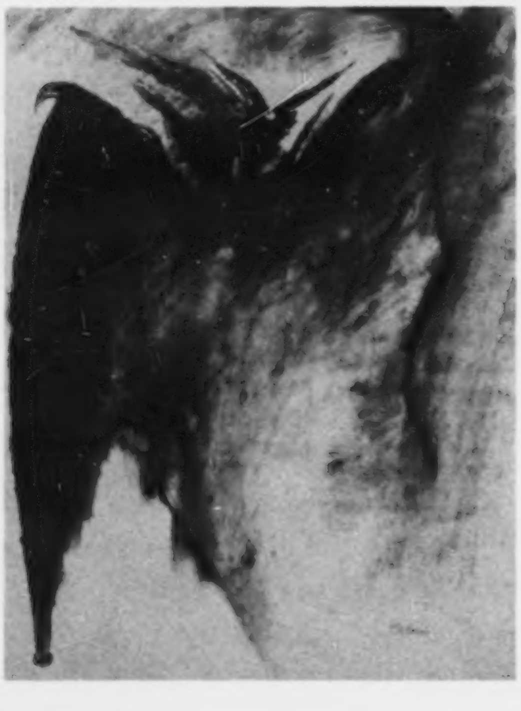


FIG. 115.—*The Assassin: November 22, 1963*, pastel 30 x 20", by Robert Osborn. Collection of Rufus Stillman. Photo by Oliva Baker.

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*The late President John F. Kennedy, whose tragic assassination is the subject of Mr. Osborn's poignant drawing, initiated plans for the National Council on the Arts to which reference was made in Chapter I.

Howard Conant added:

> I think that when boards of education and the general public understand what art education should be and can be, when they see how broad it is in its scope, the fact that it does include such things as urban design and architecture, the design of furniture, whether it's handcrafted or machine crafted, and that it does include skillfully-guided, deeply involved, and meaningful creative expression in these and other media; once this concept gets across clearly and has support, art *will* be taught. Boards of education have not insisted that art be taught because they have seen the kind of superficial art instruction which is all "make whatever you want" without effective, creative art teaching, without real personal involvement on the part of pupils *or* teachers, without studies of professional art works of the past or present, and without references to stimulating and informative examples of the vast subject matter of the sciences and humanities.
>
> Most art teaching is merely on the verge of art: it is not, as it should be, integrally involved with both expression and study in its designated subject.

John Mays expressed his belief that:

> Art teachers should not just transmit a body of knowledge, but lead their students to think and behave artistically, to think as an artist does, to think for themselves, to put forth conjectures.

Lionel Nowak:

> In art educating the child, we should immediately encourage him to assume the role of an artist.

Robert Iglehart:

> I can develop excitement in pupils in some ways and others can do it in other ways. There isn't any one way to do it but it is essential that the person who teaches art be able to generate excitement.

George Segal added:

> We should try to keep children mentally, spiritually, physically, and sensually alive. We should provide a graduated scheme of experiences, at each stage of their growth. Children should be led, through carefully guided experiences, to make personal to themselves the many attributes of the various fields of art expression. A "sense of life" must be maintained in every aspect of art education. The emphasis in teaching art should be upon discovering, inventing, and developing awareness in many types of situations.

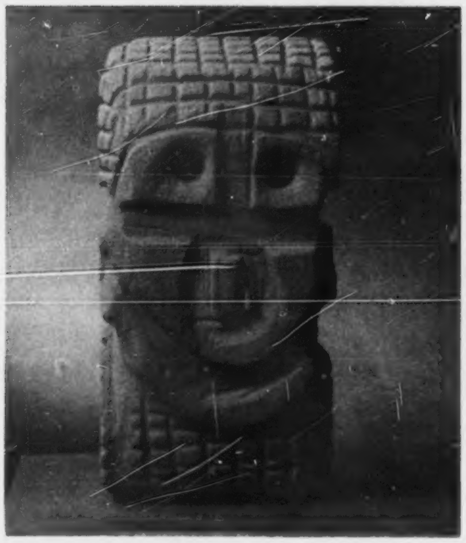


FIG. 116.—Sandstone sculpture, by boy, age 9.

Elementary and secondary school students, and students of art and art education, should be confronted with some of the problems faced by contemporary professional artists, as for example: scale, surface, and environment; and the recognition of multiple ways of seeing and solving problems and of perceiving unexpected relationships.

Robert Motherwell stated:

> Students tend to be in many ways spoon fed. It is generally felt that if they haven't learned anything it's the teacher's fault. I think of what Beethoven said, "You go out and take reality by the throat." In most circumstances if there's something you're really after, by hook or by crook or in some way you will really find it.
>
> I think we should be seriously and deeply concerned with what we can do to inspire and build a real desire for learning in students who can then really begin to learn and may continue in the process of learning, making it deeper and deeper, and finer, and of greater quality.
>
> In art I think there's something magical and in much of art education it seems to me the magic is gone. When the magic is gone, art is gone. The main problem is for both teachers and students to be able to feel the magic of art.
>
> I bitterly resent the necessity that there be some moral to art education, that we, in the end, should be writing an Aesop's fable on the value of art. I would much prefer that somebody says "I do it because I love it."
>
> Most of the people who are teaching art, reflect their immediate anguishes and necessities, desires, and frustrations. They're saying, "Can't we get fifteen more hours for an art major?" and so on. That has nothing to do with the quality of art education in the end. What it really has to do with is teaching students, or as I do, in a way, non-teach them, or unteach them.
>
> I think I could take a six year old class and make them do marvelous things, because I've done it with twenty-six year

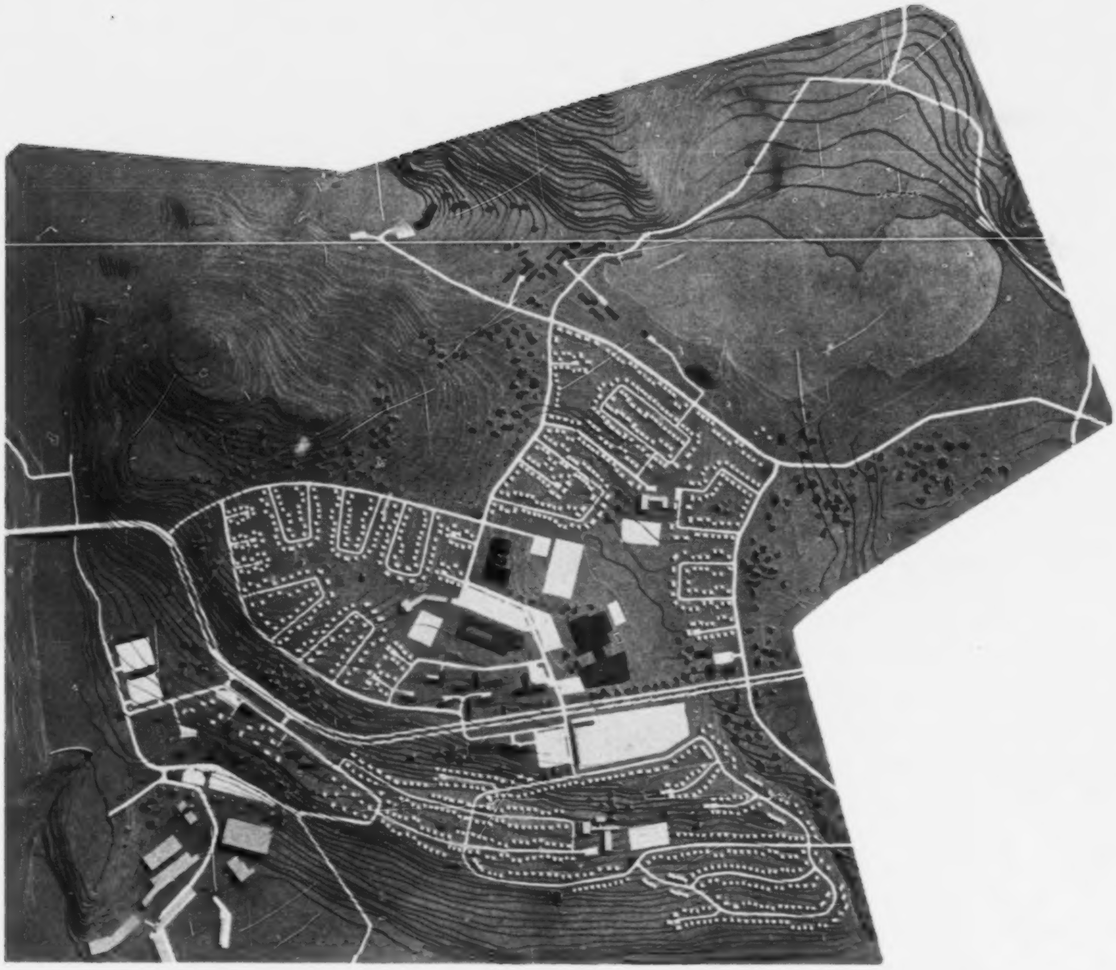


FIG. 117.—Three-dimensional urban re-design plan for Powell River, B.C., by senior college students at University of British Columbia, Vancouver.

olds, which is a more difficult problem.

It seems evident to me that most of the procedures that are used in art education today conceal from an individual what his real identity is.

Something that has puzzled me all my life is why art expressiveness seems to collapse at nine or ten years of age, and I was thinking younger children are so marvelous because they have such conviction and such interest.

Noel McKinnell commented:

It seems to me that faced with the real and immediate problem of art education, the first necessity of the art educator is not to concern himself with having people produce paintings. Everybody knows by the time they are 12 or 15 whether they are going to be a good painter or not. If they are not going to be a good painter, they don't carry on with it because there's no fun in doing something that you're not very good at.

It seems to me that the problem of the art educators is rather to extend this very limited field to include every conceivable technique whereby the student or potential adult with a lot of leisure time on his hands is going to be able to assert his own existence. This seems to be a rather basic and immediate problem, and although I admire the paintings of children, they don't seem to have very much to do with a solution to the broad problems of urban environment that we will have to face in a very, very short time.

Edward Mattil:

I would say we need a longer school day in order that adequate art activities can be included in the daily activities of children.

Noel McKinnell (in response):

It seems to me that you don't need a longer school day, but a means of introducing art education to many other disciplines. Visual perception can be used in many disciplines; it's a teaching tool. It is a byproduct through which one can better find out about structures through models, and find out many other things through all of the senses, and not just the intellect. If you will do this you will necessarily create more sensitive people, which would seem to me one of the fundamental aims of art education.

The first thing I would do, the most practical thing I would do, is to alter the way in which many of the other disciplines are taught. It seems to me that the job of art educators is much too big a job to do alone; you can't fight the whole system. There's a whole literature and a very clearly established, documented way of going about the teaching of visual perception which is not difficult to learn. People can systematically and effectively be sensitized to every aspect of their total visual environment.

Harold Rosenberg:

Persons responsible for art education should develop a comprehensive program that would go right through elementary and secondary schools which would have as a primary objective to develop children's and adolescents' familiarity with modern art.

Sister Jacqueline:

Let's be sure that what we teach in the first grade is linked to what's going to be offered in the second grade and on up through the twelfth. And let's be sure that the kind of art education recommended by artists is not lost in our work on curriculum reconstruction.

> We should provide time and opportunities for people like Rita DeLisi, Neal Mitchell, and Christopher Alexander to experiment with groups of children, perhaps in a summer training institute where other teachers could observe and participate.

Citing Mark Van Doren, who said, "Shakespeare was obviously the greatest noticer of all," Robert Osborn commented:

> One of our primary objectives should be to get children to be "noticers" of things. We should make them "noticers" of every element in their environment and, eventually, we should help them make aesthetic choices based upon their own observations.

Jerrold Zacharias observed that:

> Art history would be sterile if it were not taught as something that is expressive and creative. In teaching the history of art, art must somehow be kept *alive,* it must *capture* students.

Percival Goodman indicated his belief that the teacher's role is "not to fill the tank," but "to light the lamp;" and that it is possible, through the teaching of any art medium:

> . . . to inculcate aesthetic value judgments. For example, in making a simple pencil box, a student can be asked to select what he thinks is the proper kind of wood; he can be asked whether he thinks it should be thin or thick; he can be asked whether it should have a certain size or shape because of its intended function; he can be asked whether it should have a certain feeling, the feeling of wood; and he can be asked whether the wood he selects should be finished in one way or another.
>
> On a much broader basis, we should ask students to consider the environments in which they are living; we should help them understand the nature of their environments; and we should make them understand that things don't necessarily have to be the way they are in their environments.
>
> The first thing I would do if I had anything to do with the elementary schools and the high schools as well, would be to get rid of the idea of the separation of the shopwork and the art studio as such. Boys of a certain age, especially so-called underprivileged boys, find that art is sissy. Now, they don't find that shop is sissy and obviously if they could make objects with which they use a saw and a hammer or a welding gun or something of the sort, they wouldn't find this kind of activity sissy.

It seems to me that the essential matter that should be taught children, and especially the urban child who has so little opportunity to manipulate things, would be manual skills with which they can learn to manipulate their environment. They must develop confidence in their hands, and their brains leading their hands, in a whole variety of things, and these things may be chopping up stones, or pouring concrete, or it might be painting a picture or painting a wall, it might be making a bookend, it might be making a boat and all of the things that relate to environmental control, including the rearrangement of the family living room, ifthat were necessary, or planting a tree in the street or in the backyard. The problem of the physical environment, it seems to me, is the "total curriculum" that the *child* wants to be taught. He needs and wants to know that this physical environment is not inviolate, that it is possible to change the physical environment, that God didn't make it that way, that mostly man made it that way.

Noel McKinnell:

There is a very well documented theory on the effect that various spaces have on people. I think it's marvelous to teach a child something about space by showing a great film. But let's face it: in education we are also concerned with certain shorthand techniques, certain immediate techniques of making people aware of specific facts and this is as much a fact in art education as it is in every other kind of education. There is, for example, a whole technique of heightening visual awareness which has been very well documented; but in fact most art teachers don't use it and they don't understand it.

The very real discipline of visual awareness and perception is not being taught, it's just not understood. It seems to me that art educators should "get hip" to this and get this going in the schools! This is straight-forward, necessary discipline. Of course I am interested in the marvelous experiences children can have through art but most of them are visually illiterate. Teaching visual awareness is just like teaching someone to read and write. It's really as simple and as well documented as that, and it can and should be done efficiently in schools.

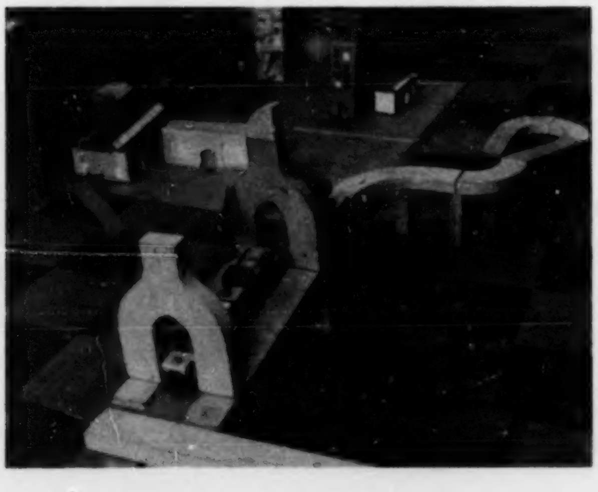
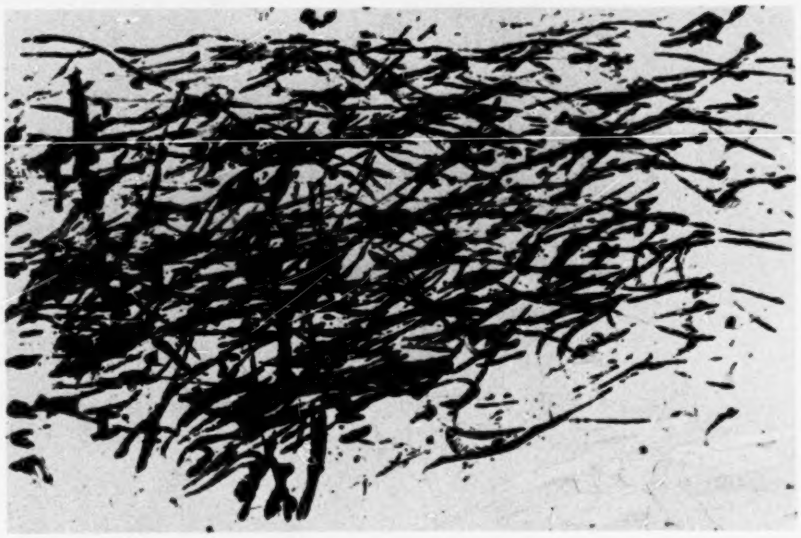


FIG. 118.—Second-graders' version of Manhattan Bridge and nearby buildings. Courtesy Zelda Dana Wirtschafter.

FIG. 119.—Graphic print (string-wrapped roller) of tree branches, created by boy, age 9.



The Recognition and Encouragement of Giftedness in Art

Concerning the recognition and development of giftedness in art education programs, Victor D'Amico said:

> If you have programs which attempt to develop the highest degree of giftedness, the more gifted some students are, the more they spark the group of which they are a part:.

d'Arcy Hayman added:

> I think that giftedness in creative expression and aesthetic judgment can be recognized and developed in children only by gifted and creative teachers. The gifted teacher, the special teacher, the devoted teacher, recognizes giftedness and other special qualities in children. I think that every child is gifted in some way. But only the mediocre or poor teacher acclaims superficial facility as talent and mistakes the superficial for the real. The quality of any program depends upon the quality of its teachers. We urgently need teachers who can recognize artistic genius in children.

Harlan Hoffa:

> The effectiveness of the art teacher in recognizing and dealing with giftedness in certain students is related to the entire educational hierarchy in which he or she operates. In order for the teacher of art to be really effective in recognizing and dealing with gifted students, it is basically necessary that the entire school system recognize such a practice as a desirable educational objective.

Facilities, Schedules and Teaching Aids

Seminar participants agreed unanimously that specially-prepared teachers of art, and specially-designed and properly-equipped art rooms, should be provided for every elementary and secondary school. (see art teaching conditions section which follows).

George Segal recommended that art rooms in schools at all educational levels should, as far as possible, resemble artists' studios, where flexibility of movement, informality, an overall artistic (not too "antiseptic") environment, excellent light, and available books, reproductions, and recorded music were characteristic.

Angiola Churchill:

> If I as an art teacher could have anything in the whole world, I would ask for a huge, empty room: a room in which you could have things like mobile sculpture holders that go up and down on pulleys; furniture and art equipment on castors which would make it possible to easily rearrange the room for varied activities; film, reproduction, and slide-showing equipment which could be used at the flick of a switch; stackable chairs or stools; and large, easily-cleaned working surfaces.

It was also felt that in addition, each school should be provided with specially prepared teachers of industrial arts, home economics, science, music, and other subjects; should have specially-equipped rooms for these teachers; and that these persons and facilities should be made available for art-correlated studies and activities.

It was recommended that schools (or at least such specially-designed facilities as art rooms) be made available for late afternoon, evening, weekend, and vacation use, with provisions for the employment of properly-trained supervisory personnel.

It was also recommended that art museums and galleries be made more readily available for individual, family and class visits. It had been reported that some museums were discouraging class visits because of unprecedentedly high general attendance.

It was felt that prevailing scheduling practices often militate against better art educational experiences, and that the typical forty or fifty minutes per week allocated for art instruction was both inadequate and wrongly-timed. At the very least, opportunities should be provided for art teachers to meet their classes for double periods on alternate weeks; but, more ideally,

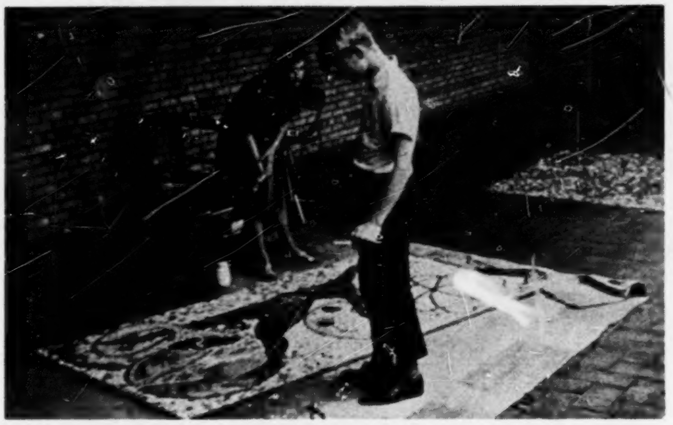


FIG. 120.—Junior high school students working on long-term mosaic mural project.

they should meet each class every week for two or three hours. Robert Motherwell commented, "From my standpoint, the present time sequence in most art teaching is intrinsically impossible. I just can't imagine walking into a room and getting out a piece of paper and starting to make a picture. It's a kind of fragmentation. I think there must be some practical answer. Maybe the last Friday of every month, the whole day, could be devoted to art instead of having everybody go to the art room for a little while each week."

Seminar participants pointed out that not only art teachers, but elementary school classroom teachers and secondary school teachers of subjects other than art should be provided with, and be able to use on a regular basis, such essential art teaching aids as original art works, reproductions, films, slides, film strips, books, and magazines. If these teaching aids are not presently available, art teachers should be permitted (indeed, encouraged) to order or otherwise acquire them. Original art works (as well as slides, films, reproductions, and books) can be, and have been, acquired by elementary and secondary schools, colleges, and professional art schools, on a charitable gift, tax-deductible basis. They can, of course (and at least to a limited extent, should) be purchased with regular school funds, and can also be purchased by parent-teacher organizations, graduating classes, and civic-minded organizations. Slides, filmstrips, reproductions, films, and other teaching aids can also be rented at reasonable rates.

It was suggested that the allocation of one percent of total new or modified building costs for the purchase or commissioning of works of art, a practice which has been implemented by enlightened leaders in business and government, be adopted as a standard practice by boards of education.

Art Teaching Conditions

Complete and resounding endorsement was given to a recommendation that both elementary and secondary schools should employ specially-trained teachers of art. Seminar participants agreed unanimously that a minimum of one hour per week (preferably much more) of specialized art instruction should be provided in grades one through twelve by art teachers who have had extensive preparation in studio courses and art history, a solid background in the liberal arts, and superior training in art educational philosophy and methods.

Participants deplored the widespread (and, in some geographic areas, apparently increasing) practice of having elementary school classroom teachers, particularly in grades one through three, assume major, even complete, responsibility for the art education of their pupils. It was pointed out that it costs no more to staff an elementary school with ten classroom teachers and ten special teachers (of art, music, science, mathetmatics, home economics, industrial arts, health, reading, physical education, etc.) than it does to staff a school with twenty elementary classroom teachers. By means of scheduling (such as that developed in the "Stoddard Plan"* wherein pupils spend half of each school day with special teachers), a faculty comprised of equal numbers of special and elementary classroom teachers not only can serve the same number of pupils as a faculty made up entirely of classroom teachers, but can offer them educational experiences which are vastly superior. Participants unanimously refused to give credence to the notion held by some proponents of self-contained (sometime called child-centered) classroom teaching that specialist teachers are less conerned with and less qualified to contribute to pupils' total educational growth than are elementary classroom teachers. They unanimously and vigorously recommended that school administrators, boards of education, and parent-teacher organizations take immediate steps to provide specially-trained teachers of art (and other subjects) for *all* pupils in grades one through twelve, on the basis of one art teacher for every five hundred elementary or secondary school pupils.

Also recommended were the following improvements in the general conditions of art teaching at all educational levels:

- —a specially-designed, fully-equipped and well-supplied (including audio-visual materials) art room should be provided for each teacher of art.
- —adequate time and space should be provided, during the school day, for the preparation of art materials, equipment and such teaching materials as slides, films, reproductions, and nature specimens; for evaluation; and for conferences with students, teachers, administrators, and parents.

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*Stoddard, George, *The Dual Progress Plan*. (Harper and Row, 1961).

- —personal creative work, scholarly study, observation visits to other schools, foreign travel, exchange teaching (at the same or different educational levels), and sabbatical leaves for study and/or creative work, should be encouraged, and should be recognized as equivalent to professional productivity (such as writing) and study in other academic fields, for purposes of accreditation, salary increments, and professsional prestige. Under ideal conditions, both time (perhaps a half-day) and space (in the art room) would be provided during the school week for the art teacher to work at his own painting, sculpture, art education research, etc. Informal observations of their own teachers' techniques and work-in-progress can be valuable and stimulating learning experiences for students, other teachers, and administrators.

(The foregoing suggestions might, to some extent, be facilitated and enhanced by means of scholarships and fellowships which local schools as well as colleges, art schools, foundations, and government agencies should offer).

- —provisions should be made for inviting professional artists, art critics and scholars, and college art professors to serve, on occasion, as consultants, guest lecturers, and instructors for short or long term periods (either as regular teachers, with certification requirements waived, or as artists in residence at the elementary and secondary school levels as well as in colleges where the practice is more common).
- —the scheduling of classes should be flexible enough to allow longer or shorter periods of time for various art expressive and study activities, and for field trips.
- —provisions should be made for the use of volunteer (or, when appropriate, salaried) assistants, including local or higher level students, parents, and custodial personnel (including maids to handle and help supervise the preparation, cleanup, storage, inventory, and ordering of materials, equipment, and teaching aids).

Art Workshops and Institutes

The establishment of summer, week-end, or after school art workshops and institutes was strongly endorsed. Participants might include persons from one, or preferably several, of the following categories: elementary and secondary school pupils, art teachers, college and art school instructors, elementary school classroom teachers, secondary school teachers of non-art subjects, college and art school students, parents, and school administrators. The workshops and

Fig. 121.—Art workshop for parents. Courtesy Midtown Ethical Culture School, New York.

institutes should be led by the ablest and most talented professional artists and scholars, or by teams of such persons, and should include expressive as well as, art and related subject study experiences in one or more of such fields as painting, sculpture, architecture, and interior design, urban design, the crafts, photography, and the graphic arts.

Where appropriate, participants should be given in-service or graduate credit, released time, and scholarships, fellowships, or other financial aid. A major aim of the workshops and institutes would be the development of knowledges and skills which would permit participants to work more effectively in further art-educating themselves as well as others.

THE ROLE OF PROFESSIONAL ARTISTS IN ART EDUCATION

Somewhat related to previously-cited recommendations, but broader in scope and much more detailed in proposed means of implementation, was an idea initiated by Robert Motherwell and further elaborated by many participants for developing a small team or committee of persons outstanding in the visual arts who would intensively train and, hopefully, profoundly affect fifty or more very carefully selected, themselves highly-gifted, teachers of art. These persons would, in turn, be expected to similarly train other groups in order to give the plan an increasingly widespread effect.

Mr. Motherwell's plan, described later, received wholehearted and enthusiastic support from many participants who had searched throughout the seminar for effective means of involving professional artists in education. "It's obvious," Mr. Motherwell said, "that we can't put leading artists in every school; but it would be possible for a few great artists to reach an enormous number of teachers and students, and to contribute to a sharp upgrading of the overall quality of art education, by means of modern communication techniques."

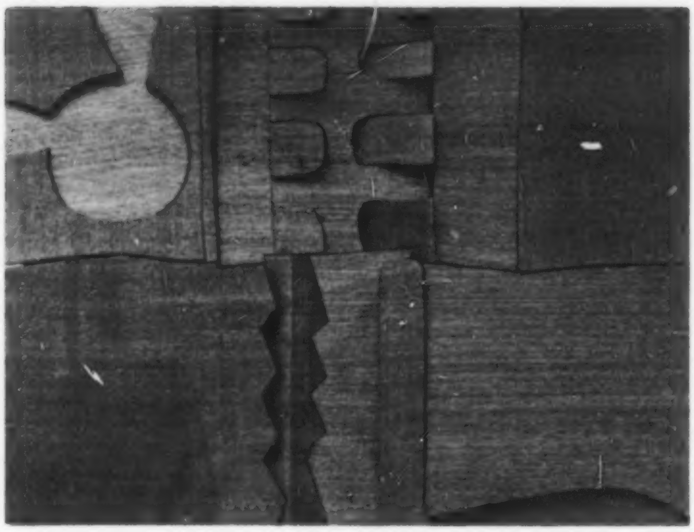


FIG. 122. – Mahogany relief, by Hugh Townley. Collection Fogg Museum, Cambridge, Mass. Courtesy Pace Gallery.

Victor D'Amico added:

> I don't know if Buckminster Fuller would be a good teacher of children, but anything he might choose to say about his own work and ideas would be tremendously exciting to children. Get him on film and let him reach children all over the world!

Other participants felt it *was* impossible, at least with persons of lesser professional reputation (including gifted art major senior or graduate students), to find ways of bringing artists into direct, perhaps even continuing contact with elementary and secondary school students and, either directly or indirectly, with their teachers as well.

Lionel Nowak saw the issue as one of practicality and vision:

> The practicality has to do with setting up projects and relationships in which artist-teachers become engaged in a continuing way with the early levels of education. The vision says that children are brighter than we think, and that if we share with them a few exciting clues they will discover their own rich world of art.

Helen Frankenthaler said:

> Many people who are artists, and who would also make excellent teachers, are deeply concerned about improving art education and would teach art in elementary and secondary schools if it could somehow be made more appealing and feasible.

The matter of teacher certification and licensing requirements, as possible deterrents to realizing the objective of bringing artists into schools, was strongly deplored. Concerning it, Zelda Dana Wirtschafter remarked:

> There are many able artists, particularly those who are young and relatively unknown, who are both interested in and capable of teaching children. To continue to deny them access to the schools is to deprive our children and teachers (classroom and specialist) of a major potential source of reform and improvement in art education.

Sister Jacqueline and several other participants who hold administrative or organizational leadership posts indicated they would work diligently to remove certification and other barriers to the foregoing and other recommendations made at the seminar.

George Segal reported that he and a group of participants who had discussed the role of the professional artist, architect, art historian, and city planner in art education, felt that making it possible for such persons to be able to teach on a part-time and freer-than-usual basis in school systems, would provide many benefits to all persons concerned.

John Mays mentioned a parallel problem in science education:

> Certain professional scientists felt they had lost touch with and were not fulfilling their proper responsibilities in the educational programs of elementary and secondary schools. Later, they found the same applied to college education programs.

With relation to bringing artists into schools on at least a guest lecure basis, or taking school groups to visit artists' studios, d'Arcy Hayman said:

> We don't need to experiment to know that good education *is* life, as well as preparation *for* life. It is known that ideal education involves bringing the child into the community and bringing the community to the *child.* In the elementary schools they bring in the policeman, the fireman, the postman for visits: they go to the farm and meet the farmer. This is nothing new. This doesn't need experimentation.
>
> So I think that the practice of bringing the men who happen to be working in paint, in stone, in films, and so forth, shouldn't be any different from bringing the men who are working in these other fields and contributing in their way to society.

Howard Conant added:

> If artists knew the potential depth, profundity, and excitement of children's responses to great works of art, which parallel the extremely high level of quality they can attain in personal art expression, they would *want* to become more actively involved in art education.

Further comments related to the need for professional artists to be more closely involved with education, and to the need for persons concerned with art education to work as closely as possible with artists, were made by the following participants:

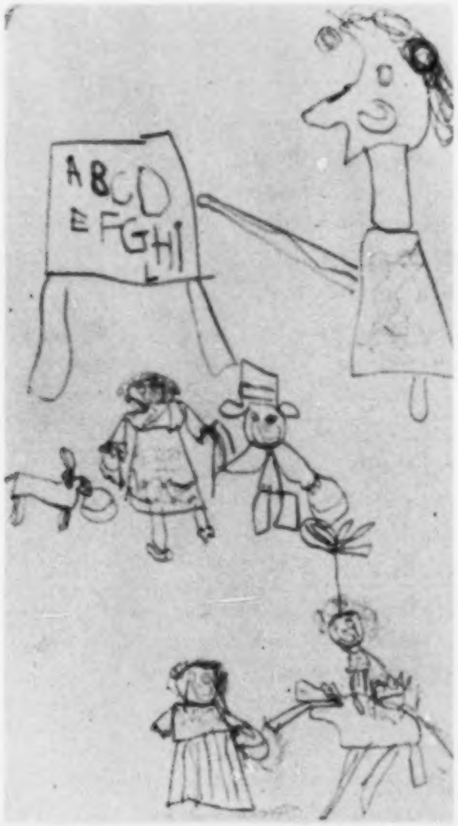


FIG. 123.—Drawing by girl, age 5. Note resemblance of horse and figures to those of Picasso (whose work the child is not believed to have seen).

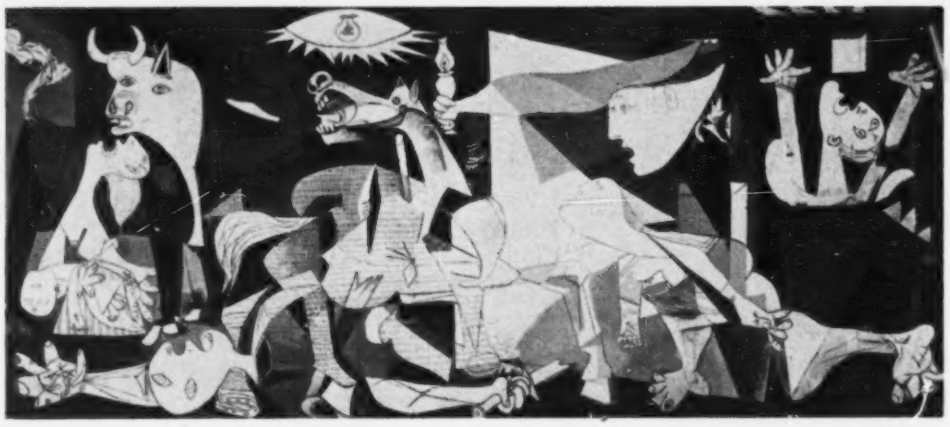


FIG. 124.—*Guernica*, 1937, oil, 11'6" x 25'8", by Pablo Picasso. Collection the artist. Courtesy the Museum of Modern Art.

Robert Goldwater:

> One of the ways and perhaps the best way of understanding art is through the understanding of artists and the way in which they produce works of art.

Sister Corita:

> You can't "use" art for any purpose, such as child development or enrichment of learning experiences in other subject areas, if you don't really know what art is.

Helen Frankenthaler:

> I think most art teachers are on a low level in the arts; they are unconcerned with what art is all about; they are unaware of what the whole psychology of art and child growth is. One of the most totally constructive things we could do would be to raise the level of quality in art education by making teaching more appealing and more readily available to the best possible artists of our time. I've been taught by artists, and I know it was they who gave me the most feeling and the most understanding and the most imagination.

Robert Motherwell:

I don't think it's possible to be a major artist in modern times without an intimate contact with the major art of our times. A man who knows intimately the great accomplishments of the twentieth century will regard any work on any level with a much greater sensibility, enthusiasm, interest, and foresight than a man who thinks that one can make up his mind what art is, or who's an artist, and "who's who" in art.

It is possible to totally cultivate both teachers and students in the major culture of our time, if it is done by somebody who really understands it himself, someone who has really internalized culture; but not one who looks at art as many do, from an observer's point of view instead of a maker's point of view. Whether I could make really mediocre art teachers and other persons creative or not, I cannot say for sure, but I certainly can make them cultivated. I would systematically go about cultivating them.

But it is my own belief that it is disastrous if the artist starts teaching before he has an established personal style. Most of the people I know have gone directly from graduate study in art to teaching and remained, as one says, "competent painters," but in my sense of the word, never became true artists.

I would be perfectly willing to go to the High School of Music and Art one day a month and spend the whole day there and do everything in my power for the students, student teachers, and teachers. But if I tried to commit myself to more, it would begin to fragment my life. One of the few bits of wisdom I have about the act of painting, and they're very hard to come by, is that I must be as unregulated as possible. Sometimes I paint for three days a month, sometimes I don't paint for ten days.

I think in our time there is an increasing tendency towards self exploitation, to act as though we're just endlessly charged, active, filled with ideas, to give here and give there. I imagine artists are like professional prize-fighters who train rigorously for six weeks for a half hour of action. You can't tear around all over the place and be ready for that half hour when it comes. I also think most artists are not very good teachers. I think most artists are really not very interested in other people. I think, more important than that, that artists have some kind of metaphysical anguish that makes moment-to-moment adapting in a predictable and specified situation very difficult for them. I think most artists have a passionate hatred for a great deal that goes on in society and cannot adjust to a routine nine-to-four schedule every day.

Teaching occupied six years of my life and probably cost me two hundred paintings. It also happened to be a miserable time in my life, and teaching was very useful for me therapeutically, simply to be with some lovely human beings which I find to be characteristic of young people in general, almost without exception, if you treat them decently.

Friedel Dzubas (in response):

You were apparently not overwhelmed by the routine of teaching; you applied yourself in a way which for you was most effective, and which from your very description I assume provided you with a positive kickback, just as you affected these people positively. In other words, it's possible for an artist, at a certain time in his life, whenever that is, to apply himself directly to teaching without suffering. I think there should be artists-in-residence in every high school on a short term basis. There are certainly plenty of qualified people in New York, so at least that geographic part of the problem could be solved.

Joseph Turner:

I seriously think that in everybody's life there might be some kind of teaching role in the schools—a "period of service."

THE MOTHERWELL PROPOSAL

Robert Motherwell:

I propose that there be a crash program where an elite task force of, say, a dozen people who at once know intimately the specific nature of contemporary art and who have some mastery of modern means of communicating it, be given complete (but open-ended and continuing) responsibility for planning and implementing a super-duper, profound, beautiful, human, sensitive, and highly cultivated program; try it out on fifty carefully-selected teachers; make whatever empirical corrections are necessary; and let each of those fifty teachers in turn teach ten or more persons. From this beginning, the idea could spread indefinitely. From the initial tiny elite comes a larger elite, and eventually the whole school system can become an elite. But there should be some checking from time to time by the original people to see that the original concepts have not been diluted, transformed, or distorted.

Many art teachers, with all of their good intentions, are really quite bored with the classroom situation and with art itself. Art can become very boring if one doesn't study it carefully and become deeply involved with its continual unfolding. The closer people get to works in the arts that are really meaningful, the more their life in the arts will be pleasant and meaningful.

I would choose people of the greatest artistic fecundity, major exponents of major fields or movements, persons of the greatest artistic influence from all parts of the world, who would be willing to devote themselves to the identification of the monumental artistic achievements of the twentieth century and to the development of means for communicating an understanding of these achievements on a significantly profound basis to the broadest possible segment of the population. I would choose people such as le Corbusier, Ad Reinhardt, Buckminster Fuller, Alex Liberman, Mies van der Rohe and Charles Eames. One might add a distinguished art educator or two to serve as consultants on such matters as curriculum, but their role would be primarily that of observer. I would choose artists who have the greatest sense of the remarkable art accomplishments of our time and who know how to communicate about them. Such persons, who could invent the kind of program I'm talking about, might be more useful than a solely creative person like de Kooning. The most powerful artistic expressions tend to be highly personal, and the kind of man who makes highly personal expressions tends to be a man who would project that highly personal expression and not a broad, twentieth century concept.

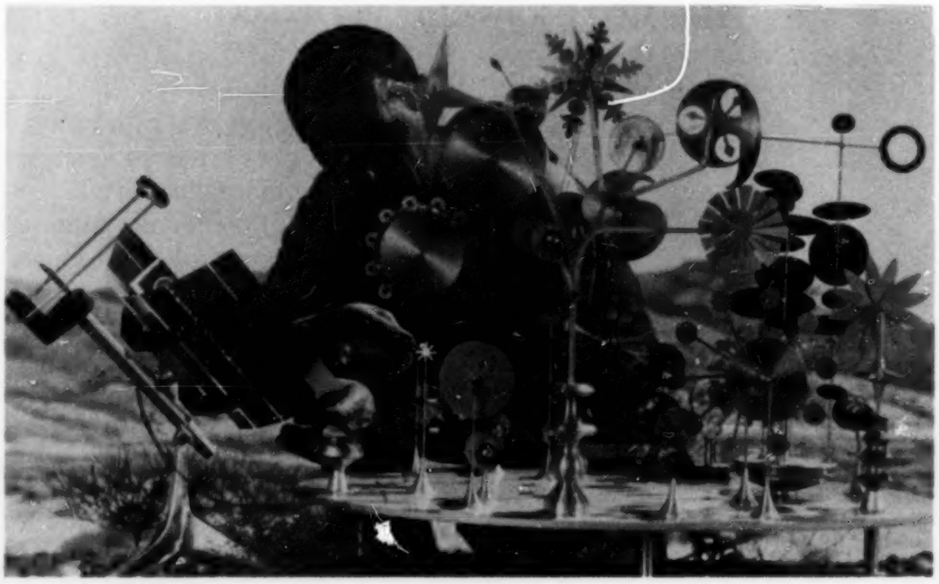


Fig. 125. —Charles Eames with the *Forecast* Solar toy he designed in which current generated by selenium cells turns wheels, spins crankshafts, and creates optical illusions, shapes, colors, motions, and sounds. Courtesy Aluminum Company of America.

I think the kind of program these people could devise could replace art education as we know it today. The problem of making art teachers culturally literate would have to come first. Means of broader implementation would have to come later.

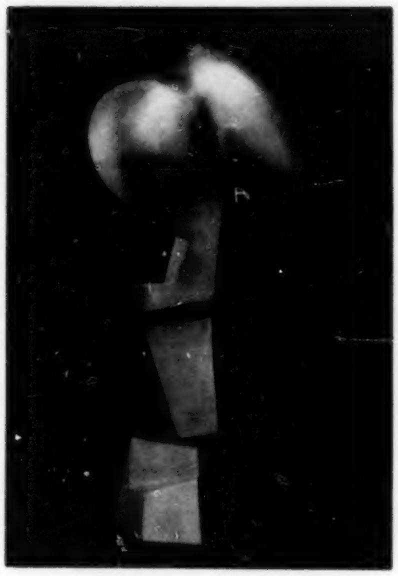


FIG. 126.—*Piece d'Echec*, 1958, bronze, 50 x 16 x 20", by Jean Orp. Courtesy Galerie Denise René.

What I wish to propose is, essentially, a classical way of educating people. It is difficult to develop an understanding of great modern art, but it *can* be done.

The problems of art in modern times are different from the problems of art at other times. I would not, therefore, use anything but modern art in such training, though others might wish and be able to do so. As I see it, the fundamental problem would be to help individual teachers bring themselves singlehandedly into a direct relation with the highest artistic culture of the twentieth century.

It's always harder to have a clear judgment of the immediate present than of any other time, but there are certainly, for example, twenty people in the twentieth century that cultivated persons would agree upon, from Frank Lloyd Wright to Matisse and Picasso, artists who have made towering masterpieces, and there's no reason why every art teacher shouldn't know the work of these men backwards and forwards, and not just in terms of knowing that in 1911 someone did such and such, but seeing the whole context in which the work was made, the internal dynamism behind it, the external situations, the responses, and so on, so that it becomes a living, complex matter.

In a course in twentieth century literature, for example, it is understood that Valery, Proust, Gide, Rilke, Kafka, Lorca, Joyce, and T. S. Eliot are crucial persons. When you're talking about modern literature, you're talking about these people. In the same way there is such a thing as real twentieth century accomplishment in painting, sculpture, and architecture, which is, I think, the only way we can define what art is in our time, which is simply what the great modern artists, the acknowledged modern masters, have made. It seems to me that most art teachers presently have a very inadequate, even sleazy, and in many ways meaningless, sense of this.

I also feel very strongly that the program should be limited to knowing a few works or a few people exceedingly well, rather than having them learn little fragments about many artists. The major problem would be to bring art teachers into extended, intensive, and real contact with the great art of our time. I would be quite insistent about what works of the twentieth century should be studied. I would resent somebody saying it should be Benton and not Picasso who is regarded as a monument. And among the great works of Picasso I would, for example, select his Guernica. I would spend a month on it. I would totally document it, I would show every drawing for it, all paintings related to it, give a background on the circumstances in which it was made, get together all of Picasso's own remarks, not only about *Guernica* but about Spain, and so on. I would try to make the whole thing become a living gesture to the students, something they could understand very well, and not something they would merely stand before in awe.

I think that a program of the type I propose might, after a period of time, prepare a sizeable number of teachers so well armed both with personal experience and a real knowledge of culture that they could convince their students that the adventure of modern art in our times is one of the most fascinating stories of the world, and that once a person really gets involved with it, it becomes a life-long pursuit, one which is intrinsically, deeply interesting.

As another example, in one of my seminar classes at Hunter College we spent one whole year just on Surrealism. Each person identified with a Surrealist, such as Duchamp or Max Ernst, and became considerably expert on him. Of course, Surrealism is an ideal subject because it is not merely technical. It is filled with all kinds of ideas on all levels about all kinds of things. I used every device that I could imagine: from making paintings, sculpture, and films based on Surrealist works studied, or conceived independently but developed in a Surrealist style; seeing Surrealist movies; taking students to museums and galleries; having students do research on Surrealism; and many other things. I told them that the main criterion was to know Surrealism as well as they knew the block they lived on. At the end of the year they really knew Surrealism and had a real foothold in modern art.

On another occasion I set up, without telling my students, many of the classical problems of the twentieth century. I had them repeat the Fauve experiments but I didn't say we're going to "do" Fauvist pictures; I said we were going to make landscapes with the most intensive color and heightened rhythm possible. Some very beautiful Fauve pictures came out of it, and later on I would show them Fauve Matisses, Braques, Vlamincks, and Derains. I would bring in a big Skira book filled with reproductions and we would sit around and discuss it and, having done the experiments, they would appreciate it much better. I also conducted similar experiments with Cubism, with various forms of hard edge abstraction, automatism, abstract expressionism, and so on.

We also dealt a lot with Dada in confronting "Pop Art." It wasn't a bolt out of the blue as it is for many people seeing it for the first time. A program devoted to twentieth century culture should be open-ended. When the next thing of national interest appears, I would include it as well.

The ones that stayed with me for two years really learned how to make works in the major modes of the century and through that, found out where their own affinity lay. There was no pretense that anybody was going to become a Rouault, or a Picasso, but it was understood that those were the people who are the guardians of what modern art is, that everybody in modern art is related to their work, and that modern art can be systematically taught and effectively learned. We discovered that some students basically felt closer to the Fauves than to subsequent movements. They loved color and they loved having a natural image, and some of the most beautiful work was done in that way. And there were others who felt very much at home with hard edge abstraction. There were other people who liked automatism, and still others who combined two or more of these things. I once felt that the course was false in assuming that all of these were immediately contemporary movements. They are not, but they were to these people in the sense that they had no knowledge of the implications of the future or past of any of them, and to them they were quite living things. And the extraordinary thing that happened was that I succeeded in the main objective, which was that all of the students became extremely familiar with the major works and movements of the twentieth century and were able to "read" almost any picture.

I think one of the curses of American civilization and of American education is that everybody knows a scrap about everything and practically nobody knows anything well. I think it's just possible to get a real view of the universe by knowing one thing backwards and forwards. I never deviated from the belief that I was teaching specifically one thing—high twentieth century culture, or high art, to use a very pretentious word. How did I know what high art was? Well, I simply decided arbitrarily upon Matisse, Picasso, Bonnard, Mondrian, Brancusi, and three or four others that are obviously the greatest artists that have lived in the first half of the twentieth century.

Toward the end of the course students would be perfectly aware that a certain Chagall was better than such-and-such a

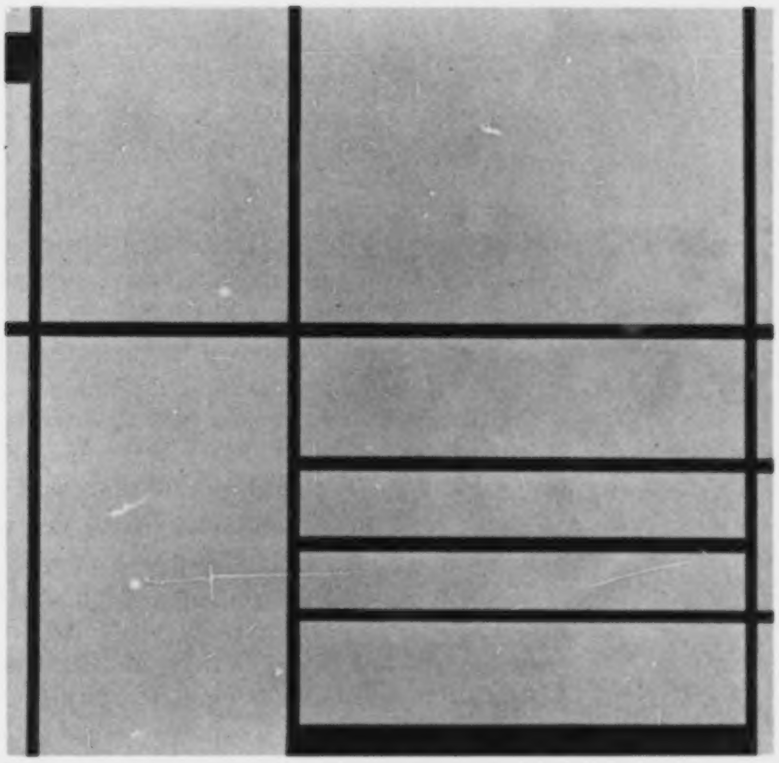


FIG. 127.—*Composition in White, Black, and Red,* 1936, oil, by Piet Mondrian. Collection Museum of Modern Art, New York.

Dali, because they understood both artists, what they were doing, and what the works of both of them really looked like. If I have any gift as a teacher, it is an enormous insistence on concreteness.

I think it is possible, in cultivating people properly, also to make them creative. But I think to do so requires a teacher who is not only intimately familiar with the history of art, and particularly of modern art, but who is himself a creative artist. I also think it is essential to conceive of the painting or self-identification problem apart from the cultural problem. But it is crucial that these two conceptual bases eventually come together. Real culture with real identity. I think American art and art education are presently over-concerned with the self-identification or self-expression concept, ranging from child art to Mies van der Rohe's work in architecture. I think the cultural problem, from a long and intellectual tradition in America, still tends to be very much underestimated. If I had my way in art education, I would throw all the force on the cultural side, because I believe that that's the aspect of art education which is terribly slighted. The self-identity or self-expression aspect will, I think, take care of itself. I think there are people who know how to relate what is presently being done to the profound aesthetic preoccupations of the twentieth century.

My idea would be not only to teach the teachers, but to make a teaching program including all necessary teaching aids and equipment. What I'm talking about could be taught systematically and thoroughly, once you understand the subject. I don't think the real subject of art is being taught. In most cases, as matters now stand, all kinds of things except the subject of art are being taught, and rather whimsically, really.

A few participants wondered if the Motherwell plan would not create a "self-perpetuating elite," a "dictatorial control group" that would actually destroy the quality of art education being sought. Sister Corita was among several who explained:

> You would, of course, choose artists who are the question-askers, not those who are the standard-dictators, and I think really great artists are question-askers; they are persons who open things up rather than dictate standards.

SUBSEQUENT SEMINARS, RESEARCH PROJECTS, AND EXPERIMENTS

Lionel Nowak recommended that seminars similar to the one described in this report (or a carry-over group of persons selected from the New York University Seminar) be held periodically to review undertaken and planned projects in art education, to identify and clarify art educational needs, and to give continuity to the development and implementation of art educational reform.

Howard Conant suggested that a series of seminars on art (and other areas of education) be planned in which one or two of the most distinguished national and international leaders of *all* academic fields meet to evaluate the status, either individually or in related clusters, of *each* educational subject and to make recommendations for improvement. Mr. Conant also recommended a series of seminars for artists representative of *all* of the visual arts fields (architecture and interior design, commercial design, the crafts, the graphic arts, painting, photography, sculpture, and urban design), either separately or in mixed groups made up of (a) the world's leading artists, (b) America's "established" artists, (c) America's leading younger artists, and/or (d) America's most promising senior or graduate art students, who would meet to consider such topics as the education of artists, the role of the artist in modern society, and the role of the artist in education.

Kathryn Bloom and Harlan Hoffa urged the encouragement of anyone interested in any phase or level of art education to develop proposals for research projects and to submit them to the United States Office of Education (or where appropriate, to other agencies such as the National Science Foundation, professional organizations, and philanthropic foundations).

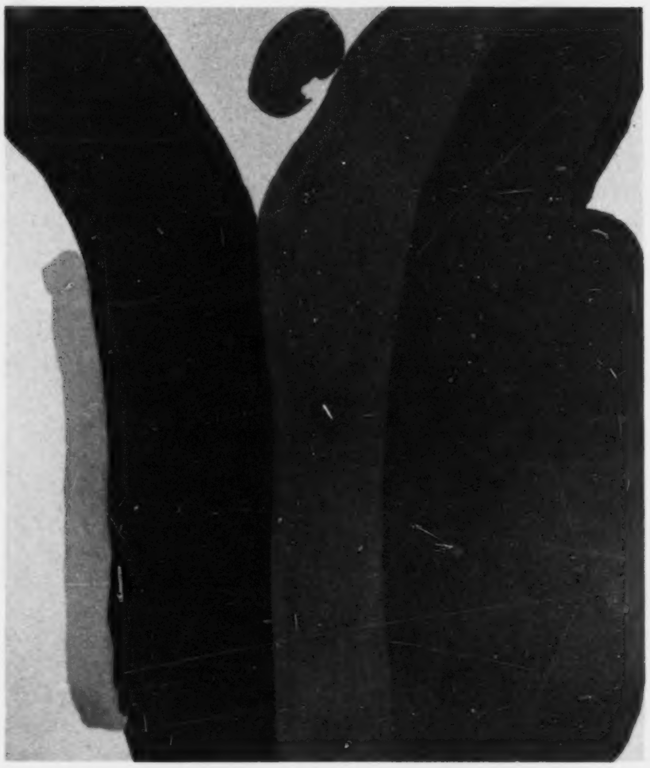


FIG. 128.—*Long Day*, 1964, oil, 84 x 69", by Friedel Dzubas.

CONCLUSION

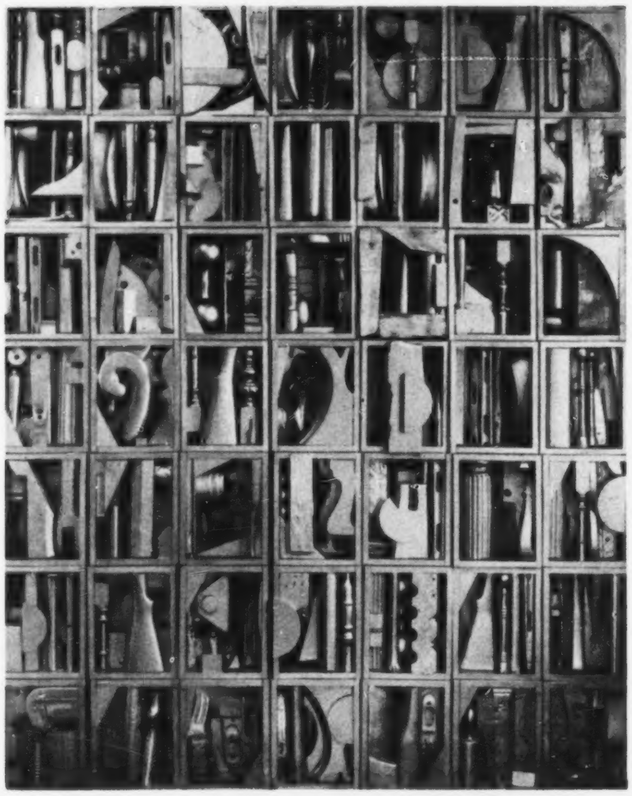
At the conclusion of four days of intensive deliberations; after having listened attentively to descriptions of the condition of the arts in contemporary society and education; after having seen and heard presentations on experimental programs; and after having discussed and analyzed the nature and meaning of education in the visual arts, seminar participants resoundingly endorsed the belief expressed by steering committee members at the inception of the seminar that the entire field of art education is in need of drastic reform, extensive renewal, sharp upgrading, and continued improvement.

Summary of Recommendations

Probably most important among the many recommendations made by New York University Art Seminar participants for improving what was regarded as a generally deplorable situation in the arts (in society in general; not by any means in education alone) were the following:

1. a stepped up and improved system of art teacher recruitment, beginning in the junior high school, reaching a high level of intensity in senior high school and the first two years of college, and involving college majors in liberal arts and other fields, majors in art fields other than art education, and professional artists.

Fig. 129.—*Dawn*, 1962, wood, 94 1/2 x 75 1/2 x 7 3/4", by Louise Nevelson. Courtesy Pace Gallery. Photo by Eric Pollitzer.



2. the development of a vast filmmaking and film distributing program in which master artists, master scholars, master teachers, and persons in many other categories would be sound-filmed in a wide variety of situations dealing with all art subjects and fields, in order that the widest possible segment of the population in audience groups ranging from pre-schoolers to elderly persons might be benefitted.
3. the development of self- as well as group-instructional art kits, instructional manuals for individual students as well as parents and teachers, teaching portfolios, sets of reproductions, slide sets, tape and disc recordings, 8 mm. films, and various combinations of the foregoing, by highly qualified groups of persons including artists, art educators, psychologists, and specialists in related areas.
4. the development and publication of authoritative and persuasive statements on all aspects of art education, for a variety of audience groups.
5. recognition of the absolute essentiality of, and the urgent need for, the prompt employment of professionally-trained teachers of art and other special subjects in every elementary and secondary school (including the often-and-wrongly-neglected primary grades) on the minimal basis of one art teacher for every five hundred pupils (or twenty classroom teachers).

6. the provision of specially equipped (including recording, projection, and display facilities) and adequately supplied rooms for art and other special subjects on the basis of one art room for every five hundred pupils (or twenty classroom teachers), to be made available for independent as well as class work, and to be open after school, weekends, and during vacation periods.
7. the development, in elementary and secondary school teachers of subjects other than art, of competence in and increasing responsibility for certain aspects of the overall art education program.
8. recognition that the unique, basically indefinable, often magical, always superbly high quality, and infinitely varied nature of art experience and the works which result therefrom necessitates art educational programs and instructional techniques which: do not work at cross purposes with the essential nature of art itself; which foster and encourage, not merely permit, art activities and studies which are open-ended and are not rigidly scheduled; have multiple solutions (or in some cases, no "solutions"); are absolutely unique (even though occasionally they may appear similar); and place great stress upon one or two, rather than many, art media or modes of expression chosen from the broad scope of the arts which includes urban design, architecture, and photography as well as the more familiar fields of painting and sculpture.
9. increased emphasis upon the development of visual perception among all persons, not just those specializing in art, beginning in the elementary grades and continuing through college and professional schools, and involving cooperative instruction from teachers in many disciplines.
10. generally increased but choronologically graduated emphasis upon the study of historic and contemporary art works at all educational levels, stressing the study of original art works supplemented by reproductions, slides, films, and books, all of which should be acquired in reasonable quantity by schools at all educational levels.
11. widespread changes and far-reaching improvements in all phases of art teacher education, including:
    a. more and better liberal arts courses and prime source readings, taught by the finest available persons in each discipline, with opportunity to "minor" in one or two subjects;

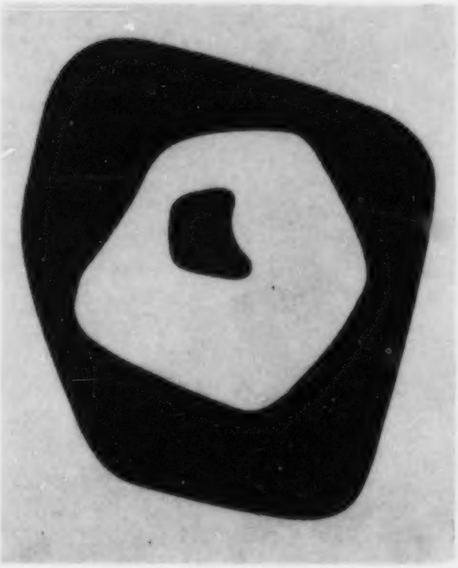


Fig. 130. —*Silent Tension*, (Dreams and Projects series) woodcut, 18 x 11", by Jean Orp. New York University Art Collection.

Fig. 131. —Art class for parents and pre-school children. Courtesy Education Department, Museum of Modern Art, New York.

b. much more and less rigidly scheduled time for, and less fragmentation in, studio courses, to be taught by the best available professional artists, in the finest possible studio facilities, to be closely related to aesthetically-oriented, intensive studies in the history of art in which selected original works are studied at first hand in depth;

c. much more time for, much more depth of study and aesthetic orientation in, but much less comprehensiveness and scope in art history courses, which should be increased in number from two or three (generally superficial) survey courses to seven or eight specialized topic or period courses taught by persons who are not only highly knowledgeable in each field but whose outlook is fundamentally artistic and aesthetic rather than historic or sociological, giving greatest emphasis to the arts of the twentieth century and involving related studies of form in the biological and physical sciences and the humanities;

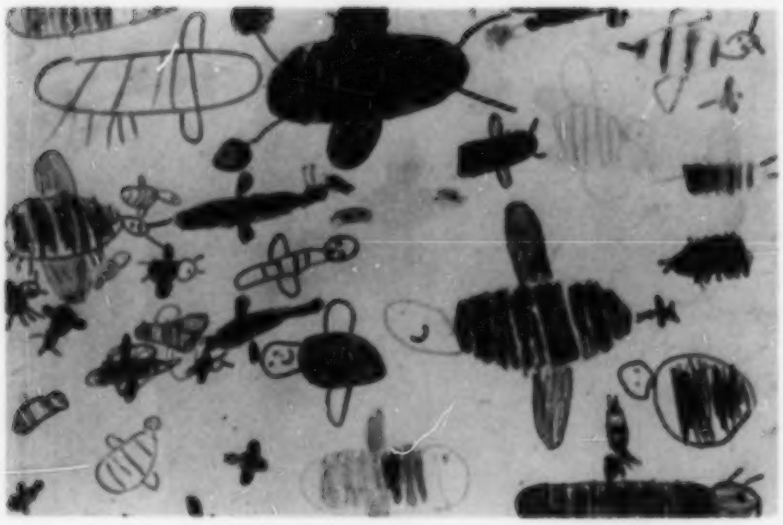


Fig. 132. – First-graders' interpretations of bumble bees.

d. less time for but much greater intensity, and effectiveness of teaching and learning in art education methods, philosophy, and student teaching courses, in which, experienced and proven master teachers should richly augment lectures and discussions with excellent films and other teaching aids, strategically-scheduled in-school observations, participation, and student teaching.

12. the development of a comprehensive and graduated (though not rigid or stereotyped) program of art education extending from the nursery school through graduate study and adult education, in which, related sequences of art expression and study experiences would build effectively upon one another; to be structured in a form which could be adapted to the needs, interests, and capabilities of individual teachers by a group of distinguished artists, art educators, psychologists, art scholars, and leaders in related disciplines.

13. the development of a comprehensive plan by which artists (both acknowledged professionals and those who are lesser known), art scholars, and leaders in other disciplines could serve art education as teachers, consultants, innovators of curriculum guides, institute and workshop leaders, and in various other capacities, One aspect of this plan, which was spelled out in more detail, was the creation of a training institute for a nucleus of some fifty carefully chosen art teachers who would be intensively educated in twentieth century visual culture by a team of ten or twelve master artists and scholars representative of the major visual art fields. The fifty art teacher/students would, in turn, be

> expected to set up similar training institutes in their own communities, with the hoped-for eventual result that a significantly large segment of the total population would develop a profound understanding of the major masterpieces of twentieth century visual culture.

Participants in the New York University Art Education Seminar felt that the prompt and effective implementation of the foregoing recommendations would, in a comparatively short period of time, bring about marked and lastingly beneficial results, not only to the field of art education, but to education in general and to modern society as a whole. Though the details and procedures called for in some of the recommendations will have to be worked out in subsequent projects and studies (for which, hopefully, some readers of this document will make research grant applications), and though there are, unquestionably, many areas of the ever-broadening field of art education which have been here overlooked but will be identified and studied by other groups, there are, nevertheless, presented in this report recommendations which are clearly enough stated, fully enough developed, and adequately compelling to warrant immediate and continuing action on the part of responsible persons in education, government, and the arts.

APPENDIX A: BIBLIOGRAPHY

The following books were recommended by one or more participants in the Seminar on Elementary and Secondary School Education in the Visual Arts. Those marked with an asterisk were listed in the preliminary abstract of the seminar which was sent to all participants.

Adams, Ansel and Newhall, Nancy, *This Is The American Earth*

Albert, Calvin and Seckler, Dorothy, *Figure Drawing Comes To Life*

Alexander, Christopher, *Notes Toward The Synthesis Of Form*

Alschuler, Rose and Hattwick, Laberta, *Painting And Personality*

*Arnheim, Rudolph, *Art And Visual Perception*

Baldinger, Wallace, *The Visual Arts*

Barr, Alfred, E., editor, *Masters Of Modern Art*

Barzun, Jacques, *Teacher In America*

Bettelheim, Bruno, *A Personal Vision In Art*

Biber, Barbara, *Children's Drawings From Lines To Pictures*

Bland, Jane Cooper, *The Art Of The Young Child*

Board of Education, City of New York, *Major Art In The Academic High Schools*

Board of Education, City of New York, *Art In The Elementary Schools*

Bruner, Jerome, *The Process Of Education*

Bush-Brown and Burchard, *The Architecture of America*

Camus, Albert, *The Rebel*

Christensen, Erwin O., *Primitive Art*

*Conant, Howard, *Art Education*

Conant, Howard and Randall, Arne, *Art In Education*

Coomaraswamy, Ananda K., *Christian And Oriental Philosophy Of Art*

——. *The Transformation Of Nature In Art*

le Corbusier, *The Contemporary City*

*D'Amico, Victor, *Creative Teaching In Art*

D'Amico, Victor, and others, *Art For The Family*

——, *The Visual Arts In General Education*

*deFrancesco, Italo, *Art Education: Its Means And Ends*

*Dewey, John, *Art As Experience*

Dreyfus, Henry, *Designing For People*

Eisenstein, Sergei, *Film Form And Film Sense*

Eng, Helga, *The Psychology Of Children's Drawings*

Erdt, Margaret H., *Teaching Art In Elementary School*

*Faure, Elie, *The Spirit Of The Forms*

Fleming, William, *Arts And Ideas*

*Focillon, Henri, *The Life Of Forms In Art*

Forster, E. M., *Two Cheers For Democracy*

Fox, Milton (editor), *Art Since 1945*

Fuller, R. Buckminster, *Ideas And Integrities*

——, *No More Second Hand God*

*Gaitskell, Charles D., *Children And Their Art*

Gezari, Temmina, *Footprints And New Worlds*

Ghiselin, Brewster, *The Creative Process*

Giedion, Siegfried, *Architecture, You, And Me*

*——, *Space, Time, And Architecture*

Giedion, Sigfried and Welcker, Carola, *Contemporary Sculpture—An Evaluation In Volume And Space*

Gilson, Etienne, *Painting And Reality*

Goldwater, Robert and Treves, Marco, *Artists On Art*

*Gombrich, E. H., *Art And Illusion*

——, *The Story Of Art*

Goodman, Percival and Paul, *Communitas*

Greenberg, Clement, *Art And Culture*

Gropius, Walter, *Bauhaus, 1919-1928*

——, *The New Architecture And The Bauhaus*

Grousset, Rene, *Civilizations Of The East*

Guggenheimer, Richard, *Creative Vision*

Haftman, Werner, *Painting In The Twentieth Century*

Hastie, W. Reid, editor, *Art Education*, 64th Yearbook of the National Society for the Study of Education, 1965, University of Chicago Press

Hauser, Arnold, *A Social History Of Art*

Heller, Jules, *Printmaking Today*

Highet, Gilbert, *The Art Of Teaching*

*Hilberseimer, Ludwig, *The Nature Of Cities*

——. *The New Regional Pattern*

Hildebrand, Adolph, *Problems Of Form*

Hughe, Rene, *Ideas And Images In World Art*

Hunter, Sam, *Modern American Painting And Sculpture*

——, *Modern French Painting*

Janis, Sidney, *Abstract And Surrealist Art In America*

Janson, H. W., *History Of Art*

Jefferson, Blanche, *Teaching Art To Children*

Johnson, Pauline, *Creating With Paper*

Karasz, Mariska, *Adventures In Stitches*

*Kepes, Gyorgy, *Language Of Vision*

Kuh, Katherine, *The Artist's Voice*

Langer, Susanne, *Feeling And Form*

——, *Philosophy In A New Key*

——, *Problems Of Art*

——, *Reflections On Art*

Leach, Bernard, *A Potter's Portfolio*

Lethaby, Rita, *Myth And Magic In Architecture*

Linderman, Earl and Herberholz, Donald, *Developing Artistic And Perceptual Awareness*

Lindstrom, Miriam, *Children's Art*

*Logan, Frederick, *Growth Of Art In American Schools*

Lord, Lois, *Collage And Construction In Elementary And Junior High School*

*Lowenfeld, Viktor, *Creative And Mental Growth*

——, *Your Child And His Art*

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*McFee, June King, *Preparation For Art*

McGraw-Hill, *Encyclopedia Of World Art*

Maiuri, Amadeo, *Roman Painting*

Malraux, Andre, *Voices Of Silence*

Maritain, Jacques, *Creative Intuition In Art And Poetry*

Marks, Robert W., *The Dymaxion World Of Buckminster Fuller*

Marshall, Sybil, *An Experiment In Education*

Mattil, Edward, *Meaning In Crafts*

Miel, Alice, *Creativity In Teaching*

*Moholy-Nagy, Laszlo, *Vision In Motion*

Mondrian, Piet, *Plastic Art And Pure Plastic Art*

Motherwell, Robert (editor), *The Dada Painters And Poets*

Mumford, Lewis, *From The Ground Up*

——, *Roots Of Contemporary American Architecture*

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——, *The City In History*

*——, *The Culture Of Cities*

*Munro, Thomas, *Art Education: Its Philosophy And Psychology*

*——, *The Arts And Their Interrelations*

Museum of Modern Art, *Modern Sculpture, Portfolio I*

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*Neutra, Richard, *Survival Through Design*
Newhall, Beaumont, *The History Of Photography From 1839 To The Present Day*
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Pallottino, Massimo, *Etruscan Painting*
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Peterdi, Gabor, *Printmaking: Methods Old And New*
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Reed, Carl, *Early Adolescent Art Education*
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Riley, Olive L., *Your Art Heritage*
Rosenberg, Harold, *The Anxious Object*
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Sachs, Paul, *Modern Prints And Drawings*
Schaefer-Simmern, Henry, *The Unfolding Of Artistic Activity*
Schinneller, James, *Art: Search And Self Discovery*
Scott, Robert, *Design Fundamentals*
Seuphor, Michel, *Piet Mondrian, Life And Work*
——, *Sculpture Of The Century*
Shahn, Ben, *The Shape Of Content*
Struppeck, Jules, *The Creation Of Sculpture*
Thompson, D'Arcy, *On Growth And Form*
Trier, Edouard, *Form And Space*
Tunnard and Reed, *American Skyline*
*Wickiser, Ralph L., *An Introduction To Art Education*
Whitehead, Alfred North, *Symbolism*
——, *The Aims Of Education*

WINEBRENNER, KENNETH, *Jewelrymaking As A Creative Art Expression*
WOLFFLIN, HEINRICH, *Principles Of Art History*
WORRINGER, WILHELM, *Abstraction And Empathy*
WRIGHT, FRANK LLOYD, *An American Architecture*
ZEVI, BRUNO, *Architecture As Space*
*ZIEGFELD, ERNEST, *Art In The College Program Of General Education*
ZIEGFELD, EDWIN (editor), *Education And Art*

APPENDIX B: FILMS

The following films were recommended by one or more participants in the Seminar on Elementary and Secondary School Education in the Visual Arts.

The Adventures Of Asterisk, Cinema 16
An Allen Kaprow Happening At George Segal's Farm, Buddy Wirtschafter
Ansel Adams, Photographer
Around My Way, Contemporary Films
Art And Motion, Encyclopedia Britannica Films
Art In The Western World, Encyclopedia Britannica Films
Artist's Proof, Rembrandt Film Library
Arts And Crafts Of Mexico, Encyclopedia Britannica Films
The Bean And The Hunter, Encyclopedia Britannica Films
Begone Dull Care, National Film Board Of Canada
Birdiness, High School Of Music And Art, New York
Blacktop, Museum of Modern Art Film Library
Buma-African Sculpture Speaks, Encyclopedia Britannica Films
Butterflies, Educational Services, Inc.
The Cage, Cinema 16
Calder's Circus, Contemporary Films
Camouflage, Wildlife Films
Chartres Cathedral, Encyclopedia Britannica Films
Children Are Creative
Children Who Draw, Brandon Films
Clay: The Origin Of Species, Contemporary Films
Collage, International Film Bureau
Color Box, Museum of Modern Art Film Library
Color and Texture In Aluminum Finishes, Alcoa
Communications Primer, Museum of Modern Art Film Library
Conspiracy In Kyoto, Indiana University Film Library
Corral, National Film Board of Canada
Degas: Master Of Motion, University of Southern California, Los Angeles
Demonstrations In Perception, United States Navy
Design And Man, Bureau of Audio-Visual Instruction, State University of Iowa
Discovering Creative Pattern, Film Associates of California
Discovering Texture, Film Associates of California
Dots, National Film Board of Canada
Eugene Atget, Contemporary Films
Evolution, Museum of Modern Art Film Library
Experiments In Cubism, Brandon Films

Fernand Léger, Thoms Bouchard, Inc.
Fiddle De Dee, International Film Bureau
Five British Sculptors Work And Talk, Contemporary Films
From Renoir To Picasso
The Golden Age Of Flemish Painting, Contemporary Films
Image In The Snow, Cinema 16
Images Medievales
The Information Machine, I.B.M.
Jackson Pollack, Philadelphia Museum of Art
Japanese House, Museum of Modern Art Film Library
John Marin, Film Images
Henry Moore
Homage To Jean Tinguely, Cinema 16
Introduction To Feedback, I.B.M.
Kurt Seligman, Thomas Bouchard, Inc.
Lascaux, Cradle Of Man's Art, International Film Bureau
Leonardo Da Vinci
Little Blue And Little Yellow, Brandon Films
Living City
Lonely Boy (Paul Anka), National Film Board of Canada
Loon's Necklace, Encyclopedia Britannica Films
Matisse, Philadelphia Museum of Art
Moonbird, Cinema 16
The Music Rack, American Craftsmen's Council
New Way Of Gravure, University of Illinois
N.Y., N.Y., Museum of Modern Art Film Library
The Open Window, International Film Bureau
Pacific 231, New York University Film Library
Passion For Life, New York University Film Library
Paul Gauguin
Poulette Grise, International Film Bureau
Product Of The Imagination, Alcoa
Rembrandt Van Rijn
The Renaissance
School Of Paris: Five Artists At Work, Contemporary Films
Sculpture And Constructions (Calder), Museum of Modern Art Film Library
Seven Guideposts To Good Design, Louis de Rochemont Assoc.
Seven Roman Artists At Work, Contemporary Films
Shelter, Encyclopedia Britannica Films
Stone Wonders Of Naumberg, Museum of Modern Art Film Library

Textures And Ornamental Arts Of India, Museum of Modern Art Film Library

The Titan: Story Of Michelangelo

Toulouse-Lautrec

Understanding Children's Drawings, Brandon Films

Vincent Van Gogh

Works By Calder, Museum of Modern Art Film Library

A World To Perceive, National Educational Television Film Service, Audio-Visual Center, Indiana University

Note: The following are addresses of sources for most of the above-mentioned films.

Aluminum Corporation of America, 200 Park Avenue, N.Y.C.

American Craftsmen's Council, 29 W. 53rd, N.Y., N.Y. 10019

Audio-Visual Bureau, State University of Iowa, East Hall, Iowa City, Iowa

Audio-Visual Center, Indiana University, Bloomington, Indiana

A. F. Films, Inc., 1600 Broadway, N.Y., N.Y. 10019

Thomas Bouchard, Inc., 80 W. 40th St., N.Y., N.Y.

Brandon Films, Inc., 200 West 57th St., N.Y., N.Y. 10019

British Information Services, 30 Rockefeller Plaza, N.Y., N.Y. 10020

Cinema 16, 175 Lexington Ave., N.Y., N.Y.

Contemporary Films, 13 E. 37th St., N.Y., N.Y. 10016

Louis de Rochemont, Associates, 267 W. 25th St., N.Y., N.Y.

Educational Services, Inc., Cambridge, Mass.

Encyclopedia Brittanica Films, 1150 Wilmette Ave., Wilmette, Illinois

Film Advisory Council, 112 E. 36th St., N.Y., N.Y.

Film Associates of California, 11014 Santa Monica Blvd., W. Los Angeles, Calif. 24

Film Images, Inc., 1860 Broadway, N.Y., N.Y. 10023

International Business Machines Corp., N.Y., N.Y.

International Film Bureau, Inc., 6 N. Michigan Ave., Chicago 6, Ill.

International Film Foundation, 1600 Broadway, N.Y., N.Y. 10019

Museum of Modern Art Film Library, 11 W. 53rd St., N.Y., N.Y. 10019

National Film Board of Canada, 1270 Avenue of Americas, N.Y., N.Y. 10020

New York University Film Library, N.Y., N.Y. 10003

Philadelphia Museum of Art, Philadelphia, Pennsylvania

United States Navy, Washington, D.C.

University of Illinois, Urbana, Ill.

University of Southern California, Los Angeles, Calif.

APPENDIX C: BIOGRAPHICAL INFORMATION ON THE PARTICIPANTS

Note: An asterisk preceding the name indicates persons who were invited to attend the seminar as observers. A double asterisk preceding the name designates members of the steering committee.

CHRISTOPHER ALEXANDER

Assistant Professor, Department of Architecture, University of California, Berkeley; author, *Notes Toward the Synthesis of Form,* and co-author (with Serge Chermayeff), *Community and Privacy;* formerly Research Associate, Center for Cognitive Studies, and fellow, Harvard University.

H. HARVARD ARNASON

Vice President and Trustee, The Guggenheim Museum, New York; author; lecturer; formerly head, Department of Art, University of Minnesota, and Director of the Walker Art Center, Minneapolis, formerly, Acting Chief, Program Planning and Evaluation Unit, U.S. State Department Office of International Information and Cultural Affairs.

***KATHRYN BLOOM**

Director, Arts and Humanities Branch, Division of Educational Research, U.S. Office of Education; formerly Art Consultant to the Junior Leagues of America; and Supervisor of Art Education at the Toledo Museum.

FREDERICK BURKHARDT

President, American Council of Learned Societies, New York; member of the Panel on Educational Research and Development; formerly President of Bennington College; teacher of philosophy at the University of Wisconsin; Research Analyst for Office of Strategic Services, and Acting Chief, European Research Division, U.S. State Department.

ANGIOLA CHURCHILL
Assistant Professor, Department of Art Education, New York University; formerly elementary art teacher, Midtown Ethical Culture School, New York, painter, author.

••HOWARD CONANT
Professor and Chairman, Department of Art Education, New York University; past chairman of the National Committee on Art Education; author of *Art Education*, co-author of *Art in Education* and other books and articles; painter; and lecturer.

SISTER MARY CORITA
Chairman, Department of Art, Immaculate Heart College, Los Angeles; painter; printmaker; represented in numerous museum and private collections.

••VICTOR D'AMICO
Director, Department of Education, Museum of Modern Art, New York; executive director of the National Committee on Art Education; founding member of the Institute for the Study of Art in Education; author of *Creative Teaching in Art*, *Experiments in Creative Art Teaching*, and numerous articles; producer, *Through the Enchanted Gate* television series; painter; lecturer; designer and director, *Children's Holiday Carnival of Modern Art* (New York, Barcelona, Brussels, Milan, New Delhi).

RITA DeLISI
Director, Project, Incorporated, Cambridge, Massachusetts (experimental art school); fabric designer; former elementary school art teacher.

FRIEDEL DZUBAS
Painter, represented by Robert Elkon Gallery, New York; Bauhaus student of Klee; Artist-in-Residence, Dartmouth College, 1962; represented in major museums and private collections.

*CHARLES DORN
Executive Secretary, National Art Education Association, Washington, D.C.: author; lecturer; editor, *Art Education*.

HELEN FRANKENTHALER
Painter, represented by André Emmerich Gallery, New York; one-man shows in American and European museums and galleries; represented in major museum and private collections.

R. BUCKMINSTER FULLER

University of Southern Illinois, Carbondale; pioneer modern architect, inventor, engineer, and designer of Dymaxion House and Geodesic structures; lecturer; author: *Education Automation; No More Second Hand God; Ideas and Integrities;* and numerous other books and articles.

PERCIVAL GOODMAN

Architect; Professor, School of Architecture, Columbia University; Fellow, American Institute of Architects and International Institute of Arts and Letters; co-author: *Communitas,* and numerous articles on architecture, art, and city planning.

ROBERT GOLDWATER

Professor of Fine Arts, Institute of Fine Arts, New York University; Director, Museum of Primitive Art, New York; author; lecturer.

J. EUGENE GRIGSBY, JR.

Head, Art Department, Phoenix Union High School, Phoenix, Arizona; teacher at Children's Holiday Carnival of Modern Art, Brussels World's Fair, 1958; painter; printmaker; organizer of cultural exhibition for National Conference on Poverty, Tuscon, Arizona.

BARTLETT HAYES

Chairman, Art Department, Phillips Academy, and Director, Addison Gallery of American Art, Andover, Massachusetts; fellow, American Academy of Arts and Sciences; co-author, *Layman's Guide to Modern Art;* author, *The American Line—100 Years of Drawing,* and numerous other books and articles.

d'ARCY HAYMAN

Head, Section of the Arts in Education and the Cultural Development of the Community, Division of Arts and Letters, UNESCO; painter; author; and former faculty member of the University of California at Los Angeles, New York University, and Columbia University.

***HARLAN HOFFA**

Art Education Specialist, Arts and Humanities Branch, Division of Educational Research, U.S. Office of Education, Washington, D.C.; formerly Chairman, Art Education Department, School of Fine and Applied Arts, Boston University; sculptor; author; lecturer.

HENRY HOPE

Chairman, Department of Art, Indiana University, Bloomington, Ind.; author: Museum of Modern Art exhibition catalogs on Braque and Lipchitz; editor *Art Journal* of the College Art Assocaiton and former member, United States National Commission for UNESCO.

**ROBERT IGLEHART

Chairman, Department of Art, The University of Michigan; formerly Chairman, Department of Art Education, New York University; lecturer; author; conducted Ford Foundation and Metropolitan Museum sponsored television programs; member, committee to formulate art program for Massachusetts Institute of Technology; officer and council member, National Committee on Art Education; art education consultant to American and foreign school systems.

SISTER M. JACQUELINE

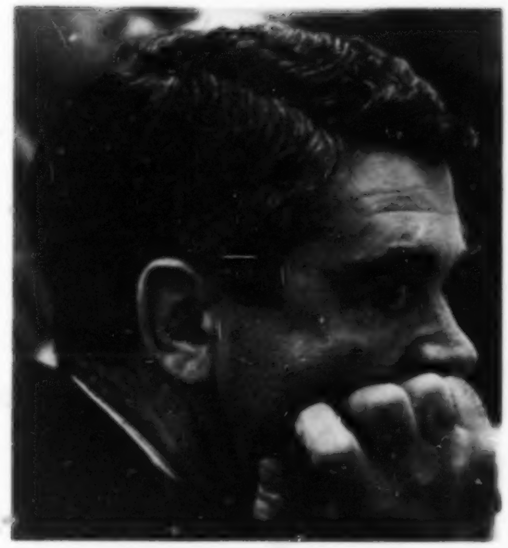
Executive Vice President, Webster College, St. Louis, Missouri; member of the Panel on Educational Research and Development; innovator of programs for development of special academic programs for elementary and secondary schools, and of the use of "junior colleagues" to assist teachers in the development of new materials.

KARL LINN

Landscape Architect and Psychologist, founder of Neighborhood Commons Movement; initiator of landscape craft training program for school drop-outs; consultant to municipalities on the War on Poverty; United Planning Organization, Washington, D.C.

**FREDERICK M. LOGAN

Professor of Art and Art Education, The University of Wisconsin, Madison; member, Council of Directors, National Committee on Art Education; lecturer; author: *Growth of Art in American Schools;* director, research study of urban aesthetics; formerly, Visiting Professor at Pennsylvania State University.



EDWARD MATTIL

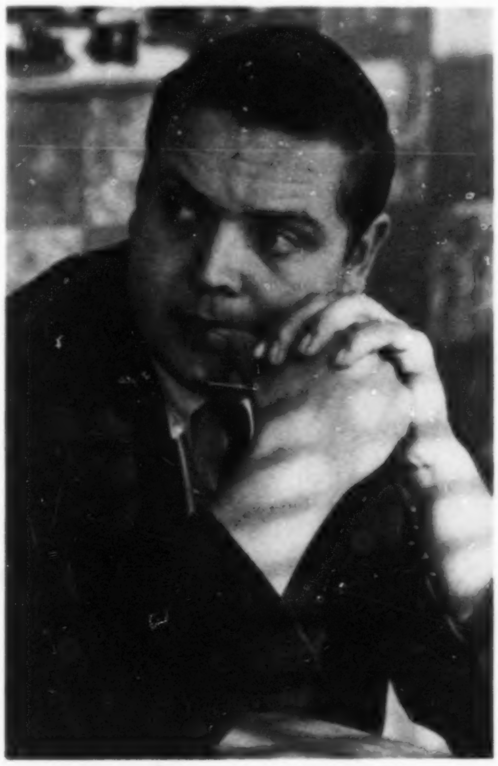
Professor and *Head*, Department of Art Education, Pennsylvania State University, University Park; President, National Art Education Association; author: *Meaning in Crafts;* editor, *Everyday Art;* metal and textile craftsman; and producer of television programs and art educational films.

*JOHN M. MAYS

Program Director, Mathematical and Physical Sciences, Course Content and Improvement Section, National Science Foundation, Washington, D.C.

NOEL M. McKINNELL

Architect (Kallman and McKinnell), Boston, Massachusetts; formerly instructor at Manchester, Columbia, and Harvard Universities.

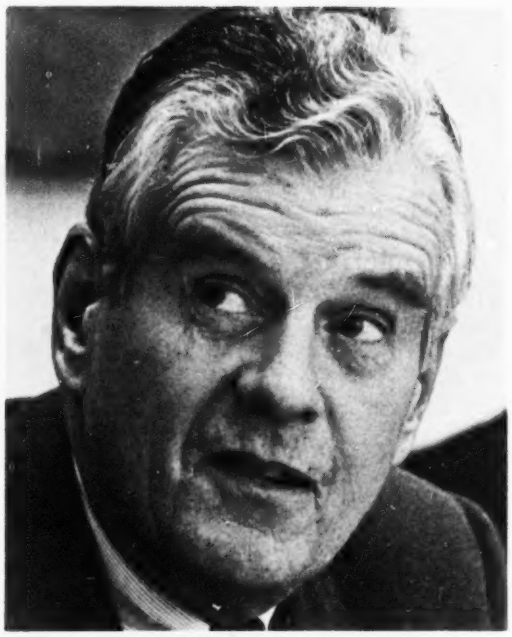


NEAL MITCHELL, JR.

Associate Professor, Department of Architecture, Harvard University, Cambridge, Massachusetts.

ROBERT MOTHERWELL
Painter, represented by Marlborough-Gerson Gallery, New York; one-man shows in major museums in America and other countries; one of the originators of "abstract expressionism"; visiting critic: Graduate School, Columbia University; editor of major writings on modern art; author; and lecturer.

LIONEL NOWAK
Composer and *pianist*, and member of the music faculty at Bennington College. Director of Summer Institute for High School Music Teachers, Bennington College, 1960 and 1962. Member of steering committee, Yale Seminar on Music Education, 1963.



ROBERT OSBORN
Satirical cartoonist; author; school board member; served as chairman of the arts committee of the Yale University Council; Fellow of Yale University's Berkley College; formerly teacher of art history and Greek philosophy at the Hotchkiss School.

OLIVE L. RILEY
Director of Art, New York City Schools; author: *Your Art Heritage* and *Adventure Book of Art;* co-author: *Art Appreciation* and *Exploring Art;* council member of the National Committee on Art Education.

HAROLD ROSENBERG

Art critic; lecturer; author: *Arshile Gorky; Tradition of the New;* and *The Anxious Moment*; and numerous articles and reviews.

GEORGE SEGAL

Maker of environmental sculpture, represented by Sidney Janis Gallery, New York. Work shown at and included in permanent collections of major American and foreign museums.

ANTHONY SMITH

Architect; Professor of Art, Hunter College; designer.

PHILIP STAPP

Filmmaker, *Boundary Lines; Picture in Your Mind; Homage to François Couperin;* graphic choreographer; formerly painter, stage designer; Guggenheim Fellow; animator, film division, the Marshall Plan.

***ROGER L. STEVENS**

Special Assistant on the Arts to the President; Chairman, National Council on the Arts, producer of "A Man for All Seasons," "West Side Story," "Cat on a Hot Tin Roof," and many other Broadway plays; executive committee member, American Shakespeare Festival and Academy; member of the board of the Metropolitan Opera Company.

***GEORGE D. STODDARD**

Distinguished Professor of Education, New York University; formerly; Chancellor and Executive Vice-President, New York University, and President, University of Illinois.

***JOSEPH TURNER**

Technical Assistant, Office of Science and Technology, Executive Office of the President, Washington, D.C.

ZELDA DANA WIRTSCHAFTER

Public school classroom teacher of deprived neighborhood grades one and two; helped establish "store front" reading clinics and a summer work camp project for teen-agers from East Harlem; now working toward establishing a year-round educational arts center for school drop-outs; author, reading readiness Teacher's Guide.

HALE WOODRUFF

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